

ASSESSORS' HANDBOOK  
SECTION 531

RESIDENTIAL BUILDING COSTS

JANUARY 2005

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# FOREWORD

This edition of Assessors' Handbook Section 531, *Residential Building Costs*, represents basic building costs to be utilized as of January 1, 2005.

There are increased costs throughout the cities and counties for permits and fees to construct buildings. Because of variation in charges, the appraiser must research and analyze the charges for the permits and fees. These costs include higher building permit fees, water and sewer connections, environmental studies, handicap access requirements, expanded engineering and architectural costs, etc.

The pages are printed in loose-leaf form to allow for insertion of revisions by section and page.

General instructions and pertinent information concerning the use of this handbook are contained in the *Introduction* section. Specific instructions and comments applicable to each building type will be found in the introductory pages of the section of the handbook devoted to that particular structure type.

Although diligent efforts have been made to supply accurate and reliable information, it is important to temper this data with local costs, since construction costs may vary both within and among counties.

This revision was prepared by Assessment Policy and Standards Division staff under the direction of the Property and Special Taxes Department.

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State Board of Equalization  
January 2005

# **RESIDENTIAL BUILDING COSTS**

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# AH 531.10: INTRODUCTION

## BASIS OF COST

Costs in this handbook are based upon the cost to build on a level site in Sacramento as of the date in the lower right-hand corner of each page. They include, except for unusually high fees and permits required by governmental agencies, all necessary costs that must be incurred in placing the building or component in the hands of the ultimate consumer, including the following:

1. Excavation for foundations, piers, and other structural foundation components, considering a level site
2. Materials
3. Labor
4. Architectural fees
5. Engineering fees
6. Supervision
7. Normal permits, etc.
8. Normal utility hook-ups
9. Overhead and profit
10. Contingencies
11. Carrying charges during construction
  - Taxes
  - Interest
  - Insurance
12. Legal expenses
13. Typical sales commissions or costs and transfer fees
14. Entrepreneurial profit

Costs are in the form of square foot cost tables for basic buildings and additive or in-place costs for optional or extra components that might differ from building to building. Building components included in basic square foot costs are:

1. Foundations as required for normal soil conditions
2. Floor, wall, and roof structures
3. Interior floor, wall, and ceiling finishes
4. Exterior wall finish and roof cover
5. Interior partitions
6. Cabinet work, doors, windows, trim, etc.
7. Electrical wiring and fixtures
8. Rough and finish plumbing as described in applicable building specifications
9. Built-in appliances as described in applicable specifications

The cost of these items should be added to the basic building costs to arrive at total improvement costs:

1. Heating and cooling systems
2. Fireplaces
3. Plumbing fixtures and built-in appliances not included in basic building costs
4. Basements
5. Porches and patios
6. Garages or carports
7. Yard improvements, i.e., fences, curbs, paving, etc.
8. Site specific extraordinary permit fees
9. Extra utility hook-ups (e.g., wells, septic)
10. Driveways, walkways
11. Landscaping

### **STANDARD CLASSIFICATION SYSTEM**

The Standard Classification System is a method of estimating basic building costs by referring to square foot cost tables. Basic building costs are then augmented by in-place or square foot costs of optional or extra components. Components included in the basic square foot costs vary with different building types.

In applying the square foot method of cost estimating, a square foot cost is assigned to the building being appraised on the basis of comparison with new buildings with known costs. The premise is that the subject building would have the same square foot cost as a similar new building.

A difficulty in applying this method arises in finding new buildings, with known costs for comparison, that are similar to the building to be appraised. Few buildings are exactly alike, and therefore few have the same square foot cost. A further complication is the matter of deciding which known costs are representative or typical replacement costs.

The Standard Classification System is a means of estimating square foot costs by systematically comparing the subject structure with structures whose costs are known. Buildings are classified according to variations in physical characteristics that cause square foot cost differences. The classification of a building then serves as a reference in finding a proper square foot cost from tables catalogued according to this system.

### **COST VARIABLES**

The physical characteristics used as variables in the standard classification system are:

- Design type
- Construction type
- Quality class
- Shape class
- Area class

Descriptive words, letters, and numbers are used to designate a particular type or class for each of the five cost characteristics. They are assigned on the basis of standards or specifications set up in the Standard Classification System. This means that any one building is assigned an overall classification and is identified by designations for each of these cost variables. Here is an example.

A building is classified as a single-family residence, D6A, with 1,450 square feet. "Single-family residence" refers to its design type; "D" to its construction type; "6" to its relative level of quality or quality class; "A" to its shape; and "1,450" is its square foot size or area class. All buildings that have this classification will have approximately the same cost. To know the cost of one is to know the cost of all.

### **DESIGN TYPES**

Buildings are first classified on the basis of the use for which they were designed. Square foot costs of buildings may vary considerably for different design types. Two buildings may be alike in area, shape, quality, and type of construction but have different square foot costs because one has the design-type features of a multiple-family residence and the other those of a single-family residence.

This handbook contains square foot costs for these design types:

- Conventional single-family residences
- Modern single-family residences
- Mountain residences
- Multiple-family residences
- Manufactured housing

## **CONSTRUCTION TYPE**

Construction type refers to the structural characteristics of a building. The letters A, B, C, D, and S are used to designate five different structural types recognized by the building trades. These types may be identified by the use of the following descriptions.

### **Class A Construction Type**

*Class A* buildings have structural steel frames which are fireproofed by encasing them in concrete or by spraying them with fireproofing material. Floor and roof structures are built of reinforced concrete. Walls are filler or curtain type and may be built of brick, concrete, aluminum, glass, or any other noncombustible material. Multiple-story office or hotel buildings are typical Class A buildings.

### **Class B Construction Type**

*Class B* buildings have a framework built of reinforced concrete columns and beams. As in Class A buildings, the floor and roof structures are built of reinforced concrete and the walls are built of noncombustible materials. Typical Class B buildings are multiple-story office buildings, hotels, and stores.

### **Class C Construction Type**

*Class C* buildings have masonry-type exterior walls. Floor structures may be built of wood frame or poured concrete. Roof structures are wood frame. The walls may be either a continuous bearing wall system or a pilaster and bond beam frame with a masonry filler or curtain wall. The masonry may be brick, tile, stone, or concrete, either poured in place or tilt-up. Interior partitions are usually wood frame. Class C buildings are usually restricted in height. They are used generally as stores, supermarkets, garages, and warehouses, and sometimes as offices or residences. Structural members may be wood or steel trusses, steel girders, or laminated wood beams.

### **Class D Construction Type**

*Class D* buildings have wood-frame construction such as that generally encountered in residences. The frame is usually made of two-by-four vertical studs, spaced about sixteen inches apart, with horizontal top and bottom plates. The exterior finish or skin may be wood siding,

shingle, stucco, masonry veneer, or sheet metal. Class D construction seldom exceeds three stories.

### **Class S Construction Type**

*Class S* buildings are specialized ones that do not fit any of the above categories. Service station buildings are an example of Class S construction.

### **QUALITY CLASSIFICATION**

Quality class ranks buildings according to their amounts of materials, grades of materials, and workmanship. If two buildings are of the same design type, construction type, shape, and size, but one has more materials or better materials, it will have a higher square foot cost. Also, if two buildings are exactly alike, except that one was built with greater care and skill, it will be of better *quality* and will have a higher cost.

Of the five choices that lead to the overall classification of a building, the choice of a quality class is the most difficult. The relative quality of a building is not as obvious as its design type, construction type, shape, or size. Many points of reference must be observed. Many parts of a building cannot be seen, and their presence and nature must be inferred.

The quality class designations are usually numbered from 1 to 10. A class 1 building is the least costly to build per square foot, and a class 10 is the most costly. They are assigned on the basis of a comparison to numbered descriptions (specifications) of typical buildings of various quality levels.

The specifications for each quality class make a distinction between classes. This distinction often shows in the *quality* of a feature and not whether the feature is present. The same feature may exist in different classes, but the quality of the feature will help to determine the classification. Conversely, some features may be included in a particular classification, while in another class, the same feature must be treated as an additive.

**Each section of this handbook dealing with different design and construction types contains a set of applicable specifications.**

The building specification charts found in the various sections are a compilation of attributes *typically* found in the building class listed on the individual charts. Not all structures will include all of the typical attributes listed in a particular classification. That does not automatically mean that it is an improper classification. The appraiser must use judgment to determine if the majority of attributes listed pertain to the structure being classified.

Many times buildings have quality features that fall between those of two classes rather than being most like one or the other. For this reason, half-class gradations are used. For example, buildings can fall in the 5.5 class, 6.5 class, etc. The unit cost of a class 5.5 is halfway between the cost of a class 5 and the cost of a class 6. The square foot cost tables array costs for half-classes as well as for full classes.



The typical attributes listed in the specifications are the basis for the cost factors established in the square foot area cost tables. These factors recognize and include an element of cost for the typical attributes. **The factors do not, however, include costs for additives.**

Generally, more additives are found in the higher building classifications, particularly D8 and above. The appraiser must use judgment to determine if an additive is significant enough to add value to the structure being appraised. If so, an appropriate adjustment should be made utilizing the *Building Additives* section of this handbook.

## **MEASURING AND DIAGRAMMING**

A diagram of the building should be made showing the house, porches, garages, and any other significant plot plan features. This enables the appraiser to compute the area of the house, to select its shape, and to compute the area of any other components to which a square foot cost should be applied.

Usually measurements are begun at the left front corner of the building and proceed counterclockwise around the house. Measurements should be recorded as dots or angles properly located on the grid. When the house is completely measured, the dots or angles are tied together with ruled lines to form an outline of the house.

Measurements are made and plotted to the nearest foot rather than fractions of a foot. The scale of the diagram should be one inch to ten feet except when the house is too large to fit on the grid at this scale. The front of the house usually faces the bottom of the page. However, some houses must be turned to face the side in order to fit the grid. Fireplaces are shown in their approximate location by a rectangle crossed in the middle.

### **Upper Floors and Basements**

The following color code is used to show the various floor levels:

- Main floor - black line
- Second floor - red line
- Third floor - blue line
- Basement - green line

If a first and a second, third, or basement wall fall on the same line, the second-floor line is drawn inside the first-floor line, the third-floor line is drawn inside the second-floor line, and the basement line is drawn inside any upper-floor line.

### **Porches and Inferior Areas**

Porches are drawn with broken lines. If there is a porch on the second floor, it is drawn with a broken red line.

Areas such as porches, inferior additions, and restricted upper floors whose costs per square foot are a fraction or percentage of the cost per square foot of the main residence should have that fraction noted and circled in the proper color on the diagram.

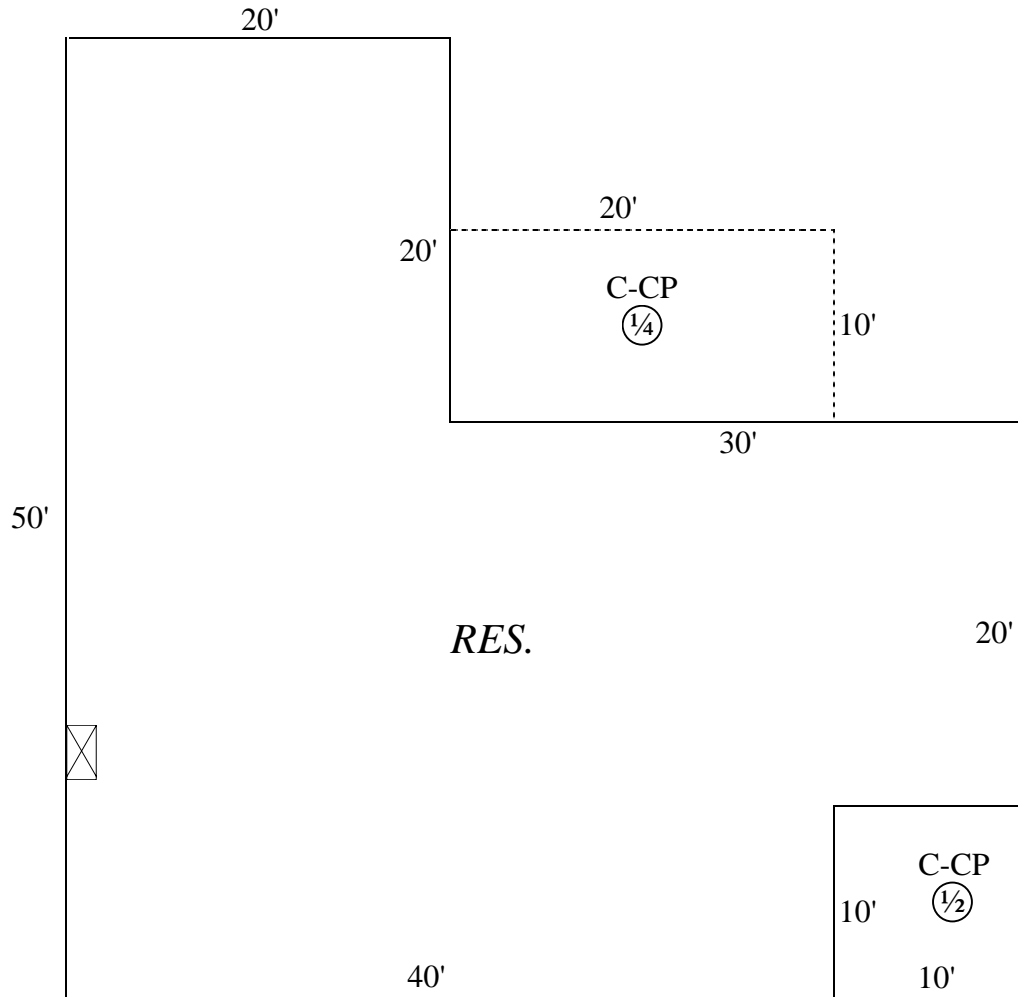
A description of the type of porch involved should be indicated on the sketch of the building plan. It can be noted by the use of the following symbols:

C	Concrete Floor	U.P.	Uncovered Porch
W	Wood Floor	C.P.	Covered Porch
B	Brick Floor	S.P.	Screened-in Porch
F	Flagstone Floor	G.P.	Glassed-in Porch

**Example:** C - CP = Concrete Floor, Covered Porch

### **Dimensioning**

The dimensions for the residence should be placed on the outside of the diagram except where a line is broken by an intersecting line as is the case in the 20,' 30,' and 40' lines in the following example. Dimensions for upper floors and basements are shown on the inside of the diagram. Dimensions are shown in the same color as the wall lines for the respective floor levels.



## AREA COMPUTATION

Uniform procedures for computing building areas are desirable when possible. It is important that a person reviewing the appraisal is able to check the building area computations quickly and accurately.

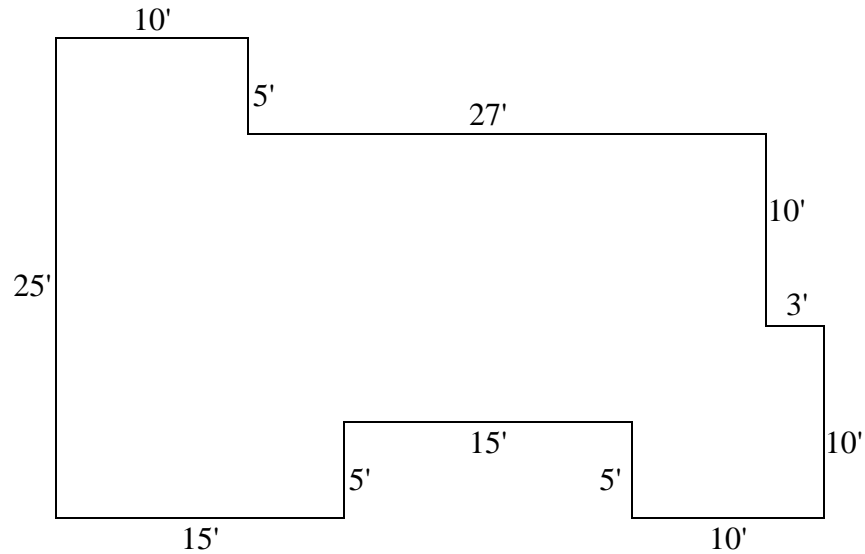
### Rectangular Buildings

Rectangular building areas are computed by dividing the building diagram into a series of rectangles, computing the area of each rectangle, and finding the sum of all the areas.

Rectangles are formed by starting at a point which is the extreme left of the lowest horizontal line on the drawing. The base of the first rectangle is a horizontal line between the point of beginning and the intersection of the first vertical line to the right. The altitude of this first rectangle is the distance between the base line and the next intersecting horizontal line above.

After eliminating areas previously formed into rectangles, this process is repeated until all areas have been formed into rectangles.

In listing dimensions, the horizontal distance is always listed first.

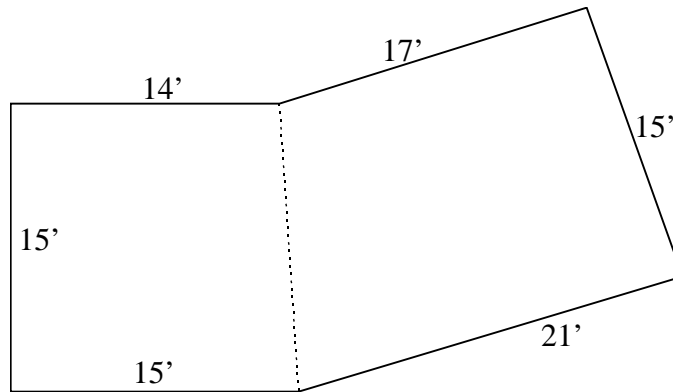


COMPUTATIONS	
$15 \times 5 =$	75
$10 \times 5 =$	50
$40 \times 5 =$	200
$37 \times 10 =$	370
$10 \times 5 =$	50
	745

## Angular Buildings

Angular buildings are so variable that a uniform method of area computation is not feasible. Areas of these buildings are computed by dividing the diagram into a series of geometric shapes. The area of each of these segments is computed, and the areas of all parts are summed.

The best procedure for computing angular building areas is one that produces the simplest and most clear-cut division of the building area. Care should be taken to insure that a reviewer is able to follow each step of the calculation and that all areas are included.



COMPUTATIONS	
$\frac{15 + 14}{2} \times 15 = 218$	
$\frac{21 + 17}{2} \times 15 = 285$	
503	

## AREA CLASSIFICATION

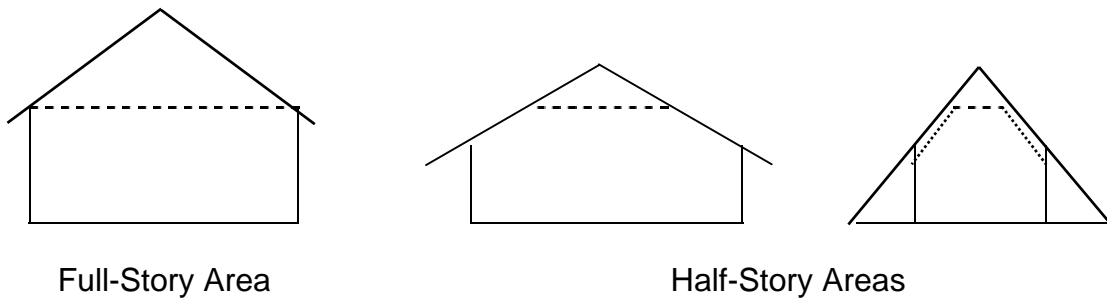
Area classification may take two forms: *total area classification* for single-family residences and *unit area classification* for multiple-family residences.

### Total Area Classification

Total area classification is made simply by selecting a square foot cost from the table that is applicable to the total building area. Total building area for this purpose includes the following areas:

- All full-story areas within and including the exterior walls of all floor levels of the building.
- Small inset areas such as entrances outside of the exterior wall but under the main roof.
- Any enclosed additions, annexes, and lean-tos with a square foot cost greater than two-thirds of the square foot cost of the main building.

A full-story area has eight or more feet of ceiling height at all exterior walls, as opposed to half-story areas which utilize the sloping roof as all or part of the exterior wall.



Total building area for single-family structures includes all full-story areas at all floor levels.

**Example:**

The square foot cost of a single-family residence with 1,200 square feet of full-story area on the first floor and 1,200 square feet of full-story area on the second floor is based upon the square foot cost for 2,400 square feet.

When portions of a building differ as to construction type, design type, or quality class, a square foot cost based upon the respective construction, design, and quality of each area is used for area classification in selecting each square foot cost; however, it is always the sum of all full-story areas on all floors of the building.

**Example:**

The first floor of a single-family residence is "C" construction type, "6" quality, and has 1,200 square feet of full-story area.

The second floor of this building is "D" construction type, "5.5" quality, and has 1,000 square feet of full-story area.

The square foot cost applied to the 1,200 square feet of full-story area on the first floor is based upon the cost of "C" construction type, "6" quality, and 2,200 square feet of full-story area.

The square foot cost applied to the 1,000 square feet of full-story area on the second floor is based upon the cost of "D" construction type, "5.5" quality, and 2,200 square feet of full-story area.

**Unit Area Classification**

Multiple-family residences square foot costs require modification for varying unit sizes.

Average unit area is found by dividing the total building area devoted to apartment use on *all* floors by the total number of units in the building. Area devoted to apartment use includes the following:

- Apartment units
- Manager's unit
- Normal office area
- A typical amount of utility room area
- Interior hallways and interior stairways

### AREA CLASSIFICATION VARIABLES

Other things equal, the smallest building is the most expensive to construct per square foot of floor area, while the largest is the cheapest. There are three major reasons for this—ratio of perimeter wall area to floor area, fixed costs, and quantity buying.

### Ratio of Perimeter Wall Area to Floor Area

The ratio of the area of the outside wall to the enclosed floor area tends to decrease with increased building size. Larger buildings have a greater floor area over which to spread the costs of the wall. Here is an example, which assumes that the buildings are similar in all respects except size.

Building	Floor Area	Perimeter (Feet)	Perimeter Wall Cost at \$15 Per Linear Foot	Wall Cost Per Square Foot of Floor Area
A	400	80	\$1,200	\$3.00
B	1,600	160	\$2,400	\$1.50

Though the larger building has a higher wall cost, there is proportionately more floor area over which to spread that cost.

### Fixed Costs

There are many items that cost the same regardless of building size. The cost of these items will therefore be greater per square foot in a small building than in a larger one of the same class.

Examples of fixed cost items are plumbing fixtures and kitchen cabinets in residences of the same class, and the cost of transporting a crane to a job site for setting tilt-up panels. In both cases, these costs will be the same regardless of the area of the building; thus, the larger the building the lower the cost per square foot.

### Quantity Buying

Builders typically receive quantity discounts on large orders of materials for large buildings and competition may force them to pass the saving on to the consumer. This discount should not be confused with the quantity discounts that large-volume builders receive but may not pass on to the consumer in the finished product.

While costs per square foot do decrease with increasing building size, the decrease is most rapid at the lower end of the size scale and tapers off with increasing building size, eventually reaching a plateau. This can be demonstrated graphically and is noticeable in the square foot cost tables.

Area classification is made simply by computing the area of the building. A square foot cost is then selected from the proper table for this area. Building areas to be included for area classification will vary with different design types.

## **SHAPE CLASSIFICATION**

Shape is a consideration in the classification of single-family residences and mountain cabins. Shape classification considers any cost differences that may arise from variations in the building outline. Buildings of the same design type, construction type, quality, and size will cost different amounts per square foot if they are of differing shapes. These cost differentials may be due to one or more of the following causes:

1. Differences in the number of corners for a given area.
2. Differences in the number of roof valleys and ridges for a given area (*cut-upness*).
3. Differences in the ratio of exterior wall area to floor area.

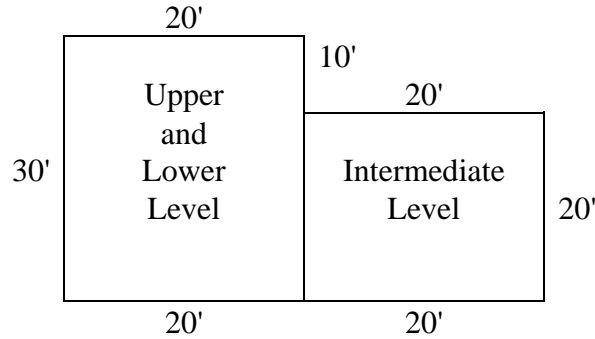
There are four shape designations: A, B, C, and D, with D the most irregular. Which designation is selected depends upon the interaction of the above three shape factors. The ratio of perimeter to floor area is the most important influence, but its importance in the selection of the shape class can be modified by the other two factors.

Shape classification of all multiple-story or split-level residential type buildings is based upon the outline formed by a composite of the extreme outside exterior walls of all full-story areas regardless of varying levels.

### **Example:**

A split-level, single-family residence has a 20' x 30' lower level, a 20' x 30' upper level directly over the lower level, and a 20' x 20' intermediate level contiguous to the 30' side of the first rectangle. In this case, shape classification is determined from the outline formed by a composite of the 20' x 30' rectangle and the contiguous 20' x 20' square.





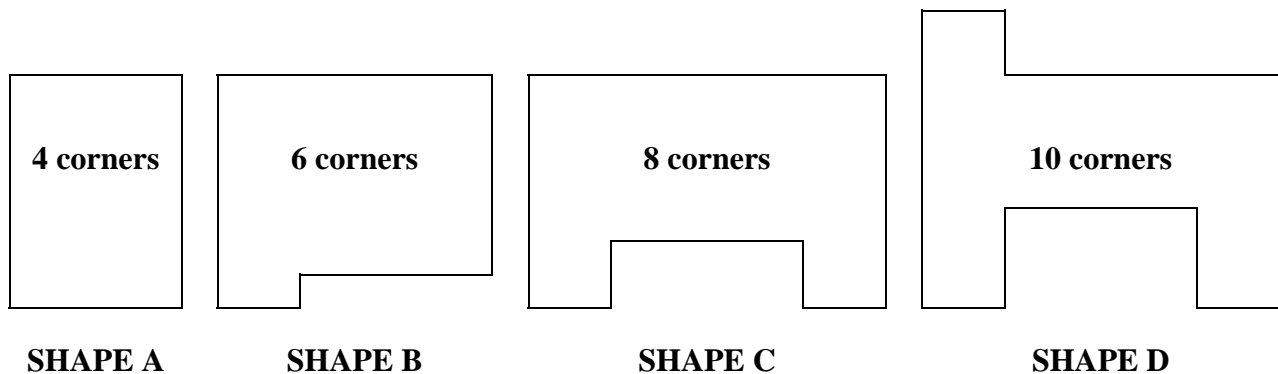
In selecting a shape classification, it is important to follow the roof and foundation line of the building. Porches and garages are items that should not be included in the shape of the home. The shape outline should only follow the foundation outline of the main structure.

NOTE: There is no shape classification for apartments.

If the shape classification guide is used, the area used for area perimeter comparison is the area within the outline used for shape classification. In the example above, use the area of the lower level plus the area of the intermediate level or 1,000 square feet.

### Single-Family Residential Shape Classification Guides

#### TYPICAL SHAPE ILLUSTRATIONS



The majority of single-family residences can be classified for shape by a visual comparison of a diagram of the subject structure with the typical shape illustrations above. If there is a question as to a proper shape classification, the Single-Family Residential Shape Classification Table (following in this chapter) may be helpful.

Buildings of the same design type, character of construction, quality of construction, and size will vary in costs because of their shape. The more irregular the shape, the greater the cost per square foot. There are three major factors that cause the costs to increase: (1) the number of corners, (2) the cut-upness of the roof, and (3) the ratio of perimeter to floor area.

## Number of Corners

There are additional costs of materials when corners are added. With the cost of materials there are also more labor costs to build corners. With more materials and labor costs, the cost per square foot increases significantly.

## Cut-Upness of the Roof

*Cut-upness* refers to the number of roof ridges, valleys, and hips and the manner in which the roof is broken up. As the shapes of houses become more complex, their roof systems are more cut-up. The more the roof is cut-up, the more the cost that must be absorbed by each square foot of floor area.

The cut-upness of the roof also adds to the costs in labor and materials. The increase in labor and material costs are absorbed in the total costs per square foot.

## Ratio of Perimeter to Floor Area

The greatest effect of shape upon cost is caused by the differing ratios of perimeter to floor area in buildings of different shapes. Given two buildings of equal size but different shape, the building with the more irregular shape will require more wall area to enclose it, and the wall cost per square foot of floor area will therefore be greater.

Following is an example of two buildings, each with an area of 400 square feet and a wall cost of \$50 per linear foot.

Buildings	Dimensions (Feet)	Perimeter (Feet)	Wall Cost	Wall Cost Per Square Foot of Floor Area
A	20 x 20	80	\$4,000	\$10.00
B	40 x 10	100	\$5,000	\$12.50

## Shape Classification Table

Shape classification may be determined by comparing the length of the outline formed by the outermost exterior walls of a single-family residence (**excluding the garage and porches**) and the area enclosed by this outline. Shape classification is indicated by a range of perimeter lengths for each shape class at various areas.

Notice in the following Single-Family Residential Shape Classification Table that the suggested ranges of perimeter lengths overlap between shape classes. This is because consideration has been given to variations in costs that might arise from building corners and framing irregular roof structures. If a perimeter length falls into an overlapping area, final determination of shape classification will consider the number of corners and roof design.

**Example:**

A residence of 800 square feet has a perimeter of 121 feet and will be classified as an "A" shape if it is a simple rectangle, and a "B" shape if it is of an irregular shape or if it has a cut-up roof.

**SINGLE-FAMILY RESIDENTIAL  
SHAPE CLASSIFICATION TABLE**

Area	Shape	Perimeter Length	Area	Shape	Perimeter Length	Area	Shape	Perimeter Length
600	A	98-106	1,600	A	160-181	3,400	A	233-277
	B	100-108		B	175-196		B	271-315
	C	102-110		C	190-211		C	309-353
	D	104-Up		D	205-Up		D	347-Up
700	A	106-115	1,700	A	165-188	3,600	A	240-286
	B	109-118		B	182-205		B	280-326
	C	112-121		C	199-222		C	320-366
	D	115-Up		D	216-Up		D	360-Up
800	A	113-124	1,800	A	170-194	3,800	A	247-296
	B	118-129		B	188-212		B	290-339
	C	123-134		C	206-230		C	333-382
	D	128-Up		D	224-Up		D	376-Up
900	A	120-132	2,000	A	178-205	4,000	A	253-304
	B	126-138		B	199-226		B	298-351
	C	132-144		C	220-247		C	345-396
	D	138-Up		D	241-Up		D	390-Up
1,000	A	126-139	2,200	A	187-216	4,200	A	259-313
	B	133-146		B	210-239		B	307-361
	C	140-153		C	233-262		C	355-409
	D	144-Up		D	256-Up		D	403-Up
1,100	A	133-148	2,400	A	196-228	4,400	A	265-322
	B	142-157		B	222-254		B	316-374
	C	151-166		C	248-280		C	368-425
	D	160-Up		D	274-Up		D	419-Up
1,200	A	138-154	2,600	A	204-237	4,600	A	271-330
	B	148-164		B	231-264		B	324-383
	C	158-174		C	258-291		C	377-436
	D	168-Up		D	285-Up		D	430-Up
1,300	A	144-161	2,800	A	212-248	4,800	A	277-339
	B	155-172		B	242-278		B	333-395
	C	166-183		C	272-308		C	389-451
	D	177-Up		D	302-Up		D	445-Up
1,400	A	149-168	3,000	A	219-258	5,000	A	283-347
	B	162-181		B	252-291		B	341-405
	C	175-194		C	285-324		C	399-463
	D	188-Up		D	318-Up		D	447-Up
1,500	A	155-175	3,200	A	266-267			
	B	169-189		B	261-302			
	C	183-203		C	296-337			
	D	197-Up		D	331-Up			

## SQUARE FOOT COST ADJUSTMENTS

In some cases, basic square foot costs for all or a portion of a building may require adjustment. Situations where this is necessary are:

- Half-story areas
- Third and upper floors
- Superior or inferior areas

### HALF-STORY AREAS

Half-story areas are upper floors of buildings that have less than eight feet of ceiling height at the exterior wall line. The sloping roof makes up all or a portion of the exterior wall. Square foot costs for half-story areas are based upon fractions of the main floor square foot costs as suggested in the *Building Additives* section. Half-story areas are *never* included in the area used for area modification.

### THIRD- AND UPPER-STORY ADJUSTMENTS

Basic square foot costs in this cost manual are applicable to first-floor level or second-floor level. Building costs tend to rise for floor levels above the second because of the increased cost of lifting materials. Square foot costs for floor levels above the second level are estimated by using the appropriate second-floor cost and increasing it by 2 percent for each floor above the second. For example:

Third Story = Second story square foot cost + 2 percent

Fourth Story = Second story square foot cost + 4 percent

Fifth Story = Second story square foot cost + 6 percent

### SUPERIOR AND INFERIOR AREA ADJUSTMENTS

There are several methods of estimating proper square foot costs for buildings with areas of different quality. The best method to use depends on the particular situation.

#### Composite Quality Class

If the difference in quality is slight or there is no distinct dividing line between areas of varying quality, use a square foot cost based on the building's average quality. For example, if a residence has D5 cost characteristics in certain areas and is more similar to a D6 in other areas, a D5.5 classification may be applicable. The total of all areas is used as the area for selecting a square foot cost from a cost table.

#### Separate Quality Classes

If two or more distinct areas are of a significantly different quality level, separate quality classes may be assigned to each area. In other words, the first-floor area may be classified as D6

quality, and the second floor may be classified as D5.5 quality. As in the case above, the total of all areas is used for selecting a square foot cost from a cost table.

## Fractions

If a small but distinct area of the building, such as an addition or a residential porch, is of significantly different quality than the main area, its cost may be estimated by applying a square foot cost that is based on a fraction of the square foot cost of the main area.

When using fractions, the area used for area classification should include all areas with assigned costs that are greater than two-thirds of the square foot cost of the main building.

## LOCATION ADJUSTMENTS

The basic building costs provided in this section are based on the Sacramento area. However, costs may vary considerably with location differences. As such, the AH 531.10 contains suggested locale factors, which are intended to account for general location differences in costs. The suggested locale factors, however, are not intended to account for the myriad of different permit and other fees charged by different jurisdictions within a region. Because of the variations in costs both within and among the counties, it is incumbent on the appraiser to research and analyze permits and fees of jurisdictions within the region and to make adjustments accordingly. In other words, the AH 531 should serve as a guide, but an appraiser must research the market to determine which costs are most applicable for the appraisal assignment and temper the data provided in the AH 531 with local cost data.

The map at the end of this section shows suggested location adjustment factors for all locations in the State of California. An adjustment for time, along with location, should also be considered if costs in the county have changed in the previous 12 months.

The appropriate locale factor adjustment, **except for manufactured housing**, should be applied to all improvement costs in this handbook, including square foot building cost, additives, yard improvements, in-place cost, and compact cost. In addition, all costs in this handbook, except for manufactured housing, should be modified by any local cost differences that are found to exist in the county.

Various counties have two or more location zones. The zone boundaries are as follows.

### Alpine County

Western Zone	All areas west of the summit of the Sierra Mountains.
Eastern Zone	All areas east of the summit of the Sierra Mountains.

**Amador County**

Western Zone	All areas west of the western border of the El Dorado National Forest.
Middle Zone	From the western boundary of the El Dorado National Forest to the 5,000-foot elevation line.
Eastern Zone	All areas east of the 5,000-foot elevation line.

**Butte County**

Western Zone	All areas west of the western boundary of the Plumas National Forest.
Eastern Zone	All areas east of the western boundary of the Plumas National Forest.

**Calaveras County**

Western Zone	All areas west of the western boundary of the Stanislaus National Forest.
Middle Zone	From the western boundary of the Stanislaus National Forest to the 5,000-foot elevation line.
Eastern Zone	All areas east of the 5,000-foot elevation line.

**El Dorado County**

Western Zone	All areas west of the western boundary of the El Dorado National Forest.
Western Middle Zone	From the western boundary of the El Dorado National Forest east to the 5,000-foot elevation line.
Eastern Middle Zone	From the 5,000-foot elevation line to the summit of the Sierra Mountains.
Eastern Zone	From the summit of the Sierra Mountains to the Nevada border.

**Fresno County**

Western Zone	All areas west of the western border of the Sierra National Forest.
Middle Zone	From the western boundary of the Sierra National Forest to the 5,000-foot elevation line.
Eastern Zone	From the 5,000-foot elevation line to the eastern boundary of the county.

## **Inyo County**

National Forest Zone      All areas within the Inyo National Forest.

Bishop/  
Independence Zone      All areas outside the Inyo National Forest.

## **Kern County**

Western Zone      All areas west of a line following the western boundary of the Sequoia National Park in the northern portion of the county to the intersection of the Kern River, then continuing in a southerly direction east of the towns of Edison, Di Giorgio, and Arvin to a point on the Ventura County border west of the town of Lebec.

Sequoia National Forest Zone      All areas within and surrounded by the Sequoia National Forest, including the towns of Lake Isabella, Bodfish, Wooford Heights, Kernville, Onyx, Weldon, and Havilah.

Middle Zone      All areas between the eastern boundary of the western zone and the Los Angeles Aqueduct, excluding the Sequoia zone.

Eastern Zone      All areas east of the Los Angeles Aqueduct.

## **Los Angeles County**

Western Zone      All areas west of the San Bernardino National Forest boundary line.

Mountain Desert Zone      All areas east of the San Bernardino National Forest boundary line.

## **Madera County**

Western Zone      All areas west of the western boundary of the Sierra National Forest.

Middle Zone      From the western boundary of the Sierra National Forest to the 5,000-foot elevation line.

Eastern Zone      From the 5,000-foot elevation line to the eastern boundary of the county.

## **Mariposa County**

Western Zone      All areas west of the western border of the Stanislaus National Forest.

Middle Zone      From the western boundary of the Stanislaus National Forest to the 5,000-foot elevation line.



Eastern Zone	From the 5,000-foot elevation line to the eastern boundary of the county.
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### **Mono County**

National Forest Zone	All areas within the Toiyabe and Inyo National Forests.
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Bridgeport Zone	All areas outside the national forest areas.
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Mammoth Lakes Zone	To include Mammoth Lakes, June Lake Loop, and Lake Crowley areas.
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### **Nevada County**

Western Zone	All areas west of the western boundary of the Tahoe National Forest.
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Western Middle Zone	From the western boundary of the Tahoe National Forest to the 5,000-foot elevation level.
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Eastern Middle Zone	From the 5,000-foot elevation level to the summit of the Sierra Mountains.
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Eastern Zone	From the summit of the Sierra Mountains to the Nevada border.
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### **Placer County**

Western Zone	All areas west of Highway 49 and excluding all towns on Highway 49.
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Western Middle Zone	From Highway 49 east to the Tahoe National Forest boundary and including the town of Auburn.
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Eastern Middle Zone	From the western boundary of the Tahoe National Forest to the summit of the Sierra Nevada Mountains.
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Eastern Zone	From the summit of the Sierra Mountains to the Nevada border.
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### **Riverside County**

Western Zone	All areas west of San Geronio Pass and the western border of the San Bernardino National Forest, including the towns of Beaumont and Banning.
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Eastern Zone	All areas east of San Geronio Pass and the western boundary of the San Bernardino National Forest.
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## **San Bernardino County**

San Bernardino Zone	All areas west of the San Bernardino National Forest boundary line.
Mountain Desert Zone	All areas east of the San Bernardino National Forest boundary line.

## **San Diego County**

Western Zone	All areas west of the western boundary of the Cleveland National Forest.
Eastern Zone	All areas east of the western boundary of the Cleveland National Forest.

## **Santa Barbara County**

Northern Zone	All areas north of the Santa Ynez River.
Southern Zone	All areas south of the Santa Ynez River.

## **Sierra County**

Western Zone	All areas west of the 5,000-foot elevation line.
Middle Zone	From the 5,000-foot elevation line to the summit of the Sierra Mountains.
Eastern Zone	From the summit of the Sierra Mountains to the Nevada border.

## **Tulare County**

Western Zone	All areas west of western boundary of the Sequoia National Forest.
Middle Zone	From the western boundary of the Sequoia National Forest to the 5,000-foot elevation line.
Eastern Zone	From the 5,000-foot elevation line to the eastern boundary of the county.

## **Tuolumne County**

Western Zone	All areas west of the western boundary of the Stanislaus National Forest.
Middle Zone	From the western boundary of the Stanislaus National Forest to the 5,000-foot elevation line.

Eastern Zone	From the 5,000-foot elevation line to the eastern boundary of the county.
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**Yuba County**

Western Zone	All areas west of the western boundary of the Plumas National Forest.
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Eastern Zone	All areas east of the eastern boundary of the Plumas National Forest.
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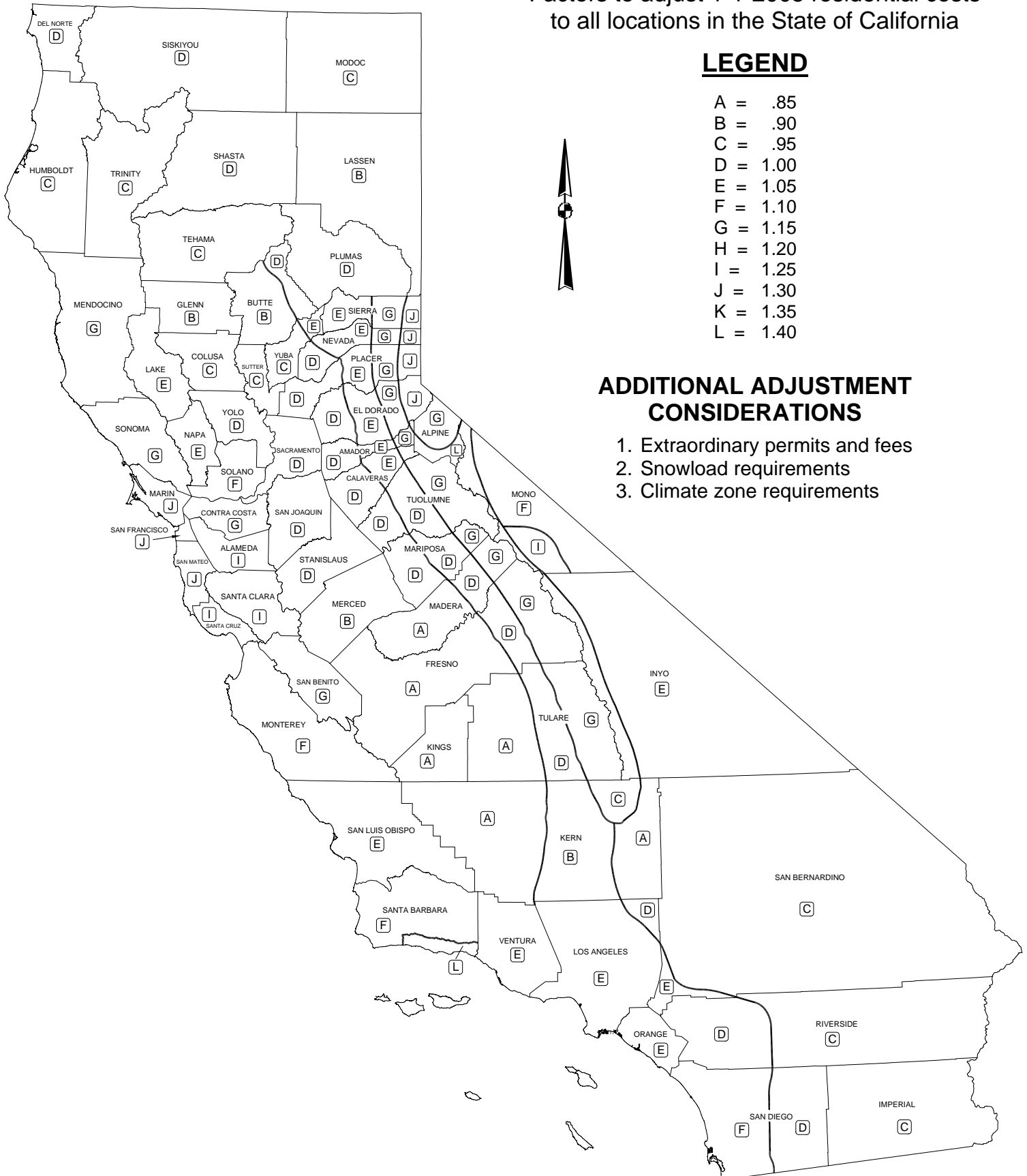
Factors to adjust 1-1-2005 residential costs  
to all locations in the State of California

**LEGEND**

A =	.85
B =	.90
C =	.95
D =	1.00
E =	1.05
F =	1.10
G =	1.15
H =	1.20
I =	1.25
J =	1.30
K =	1.35
L =	1.40

**ADDITIONAL ADJUSTMENT  
CONSIDERATIONS**

1. Extraordinary permits and fees
2. Snowload requirements
3. Climate zone requirements



## AH 531.20: SINGLE-FAMILY RESIDENTIAL CONVENTIONAL TYPE

Conventional single-family residences are residential buildings designed for permanent single-family occupancy and usually built before the year 1950. They differ from modern single-family residences in that they have fewer bathrooms and fewer built-in features such as ovens, ranges, and dishwashers. These differences are defined by the respective building specifications.

Square foot costs include all costs and components as described on page 1 of AH 531.10, the *Introduction* section of this handbook, including all plumbing fixtures and built-ins as described in the applicable building specifications.

Shape classification may be determined by using the guides in the *Introduction* section of this handbook.

**NOTE:** The specifications for each quality class make a distinction between classes. This distinction often shows in the *quality* of a feature and not whether the feature is present. The same feature may exist in different classes, but the quality of the feature will help to determine the classification. Conversely, some features may be included in a particular classification, while in another class, the same feature must be treated as an additive.

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-4 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Light concrete
<b>Floor Structure</b> Joists: 2" x 6", 24" o.c., or 4" concrete
<b>Walls and Exterior</b> 6" reinforced concrete block, or clay tile Painted exterior Windows: Low-cost steel sash
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: 3 ply built-up 15# felt, mopped Overhang: 16", unsealed Gutters: None
<b>Floor Finishes</b> Painted concrete or low-cost asphalt tile
<b>Interior Finish</b> Painted concrete block; wallboard or plywood and paint on partition walls
<b>Interior Detail</b> Trim: One member Douglas Fir painted or rubber base Closets: One small closet per bedroom; minimum shelving
<b>Bath Detail</b> Number: One Floors: Painted concrete or low-cost asphalt tile Walls: Painted concrete block; wallboard or plywood and paint on partition walls Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 6' Douglas Fir, painted Wall Cases: Small area Douglas Fir, painted Drain Board: 6' wood or linoleum
<b>Plumbing</b> Four fair quality fixtures Laundry tray and small water heater
<b>Special Features</b> None
<b>Electrical</b> Knob and tube or Romex wiring; simple fixtures

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-5 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced concrete block, painted exterior Windows: Low-cost steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Asphalt shingles or composition tar and pea gravel Overhang: 12" to 16", unsealed Gutters: Over entrances
<b>Floor Finishes</b> Asphalt tile or low-cost carpet
<b>Interior Finish</b> Painted concrete block; gypsum board taped, textured, and painted on partitions
<b>Interior Detail</b> Trim: Douglas Fir, painted, or rubber base Closets: Moderate amount; low-cost doors
<b>Bath Detail</b> Number: One Floors: Asphalt tile Walls: Plaster painted or gypsum board and enamel Shower: None or over tub; no tile
<b>Kitchen</b> Base Cabinet: 6' Douglas Fir, painted Wall Cases: 20 sq. ft. Douglas Fir, painted Drain Board: 6' low-cost ceramic tile
<b>Plumbing</b> Four average quality fixtures Single laundry tray and small water heater
<b>Special Features</b> None
<b>Electrical</b> Romex wiring; simple fixtures

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-6 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced colored concrete block, or 8" common brick Windows: Average quality steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Wood shingle, light shake, good composition shingles, or composition with tar and rock Overhang: 16", unsealed Gutters: 4" galvanized and painted at all eaves
<b>Floor Finishes</b> Good quality vinyl asbestos tile or low-cost carpet
<b>Interior Finish</b> Gypsum board, taped, textured, and painted; colored interior plaster; some wallpaper
<b>Interior Detail</b> Trim: Douglas Fir, painted Closets: Average amount; low-cost wood or metal doors
<b>Bath Detail</b> Number: One Floors: Ceramic tile or good vinyl asbestos tile Walls: Hard plaster enameled or gypsum board taped and enameled Shower: Over tub with ceramic tile wainscot
<b>Kitchen</b> Base Cabinet: 8' white pine, painted Wall Cases: 36 sq. ft. white pine, painted Drain Board: 8' ceramic tile
<b>Plumbing</b> Five medium-priced fixtures Single laundry tray; water heater
<b>Special Features</b> None
<b>Electrical</b> Romex or knob and tube; medium-priced fixtures



**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-7 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced colored detailed concrete block, or 8" common brick Windows: Good quality aluminum, or average quality steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Medium shake, or composition with large rock Overhang: 30", unsealed Gutters: 6" galvanized and painted at all eaves
<b>Floor Finishes</b> Average quality carpet; average quality sheet vinyl or good quality inlaid linoleum in kitchen and breakfast room
<b>Interior Finish</b> Gypsum board taped, textured, and painted; plaster with putty coat finish; some wallpaper
<b>Interior Detail</b> Trim: Douglas Fir, painted; some hardwood members Closets: Average amount with average quality wood doors
<b>Bath Detail</b> Number: One and one-half Floors: Ceramic tile in main; good vinyl asbestos tile in half bath Walls: Hard plaster and enamel Shower: 6' ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 10' good pine or hardwood veneer Wall Cases: 36 sq. ft. good pine or hardwood veneer Drain Board: 10' ceramic tile with 14" splash
<b>Plumbing</b> Six standard fixtures ; one double laundry tray; water heater
<b>Special Features</b> 6' sliding glass or French doors; garbage disposer; kitchen exhaust vent; 4' ceramic tile top vanity in main bath
<b>Electrical</b> Romex wiring; average fixtures with a special fixture in dining room

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-8 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced split face or slump stone block Windows: Good quality steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Heavy shake or adobe tile Overhang: 36", unsealed, or 24", sealed Gutters: 8" galvanized and painted at all eaves
<b>Floor Finishes</b> Terrazzo or mission tile in entry hall; good tongue and groove hardwood or good carpet in living, dining, and bedrooms; good sheet vinyl in kitchen and breakfast rooms
<b>Interior Finish</b> Gypsum board with heavy texture and paint; plaster with putty coat finish; some good wallpaper or vinyl wall covering; some good hardwood veneer paneling
<b>Interior Detail</b> Trim: Two members pine base and shoe; some good hardwood Closets: Ample closet space and shelving
<b>Bath Detail</b> Number: One bath for two bedrooms Floors: Good ceramic tile Walls: Hard plaster and enamel Shower: 6' good ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 10' good hardwood veneer Wall Cases: Ample good hardwood veneer and utility cabinets Drain Board: Good ceramic tile
<b>Plumbing</b> Eight or more good fixtures; double laundry tray; two water heaters
<b>Special Features</b> 8' sliding glass or French doors; 4' ceramic tile top vanity in each bath; deluxe range hood and fan; built-in oven and range; garbage disposer; Formica breakfast bar
<b>Electrical</b> Romex wiring; good fixtures

SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL TYPE  
SQUARE FOOT AREA COST TABLES

**"C" CONSTRUCTION - SHAPE A**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
C-4	73.75	70.54	68.00	65.80	63.78	62.27	60.81	59.55	58.48	57.56	56.59
C-4.5	80.34	76.85	74.08	71.71	69.55	67.84	66.27	64.93	63.76	62.69	61.66
C-5	87.55	83.87	80.80	78.12	75.80	73.91	72.20	70.77	69.54	68.36	67.30
C-5.5	95.51	91.34	88.01	85.17	82.57	80.58	78.66	77.15	75.76	74.47	73.38
C-6	109.04	104.40	100.52	97.23	94.35	92.09	89.84	88.06	86.48	85.19	83.74
C-6.5	119.97	114.84	110.60	107.01	103.82	101.25	98.89	96.96	95.15	93.66	92.10
C-7	131.95	126.26	121.67	117.77	114.18	111.45	108.82	106.70	104.75	103.02	101.42
C-7.5	151.77	145.21	139.96	135.37	131.39	128.16	125.24	122.66	120.42	118.40	116.54
C-8	174.19	166.67	160.59	155.38	150.70	147.09	143.72	140.83	138.26	135.98	133.79

**"C" CONSTRUCTION - SHAPE A**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
C-4	55.95	54.50	53.43	52.46	51.66	50.96	50.39	49.83	49.30	48.84	48.19
C-4.5	60.94	59.49	58.28	57.19	56.22	55.57	54.92	54.34	53.81	53.25	52.52
C-5	66.40	64.78	63.47	62.30	61.32	60.54	59.85	59.19	58.59	57.97	57.19
C-5.5	72.35	70.66	69.16	67.95	66.86	66.01	65.30	64.48	63.84	63.22	62.35
C-6	82.66	80.70	78.95	77.46	76.35	75.36	74.55	73.67	72.94	72.22	71.22
C-6.5	90.97	88.72	86.88	85.38	84.05	82.88	81.90	81.03	80.28	79.47	78.33
C-7	100.06	97.62	95.60	93.90	92.41	91.30	90.14	89.11	88.29	87.41	86.24
C-7.5	115.07	112.23	109.99	107.97	106.25	104.91	103.71	102.51	101.52	100.54	99.13
C-8	132.03	128.88	126.26	123.94	121.99	120.44	118.97	117.61	116.54	115.43	113.71

**"C" CONSTRUCTION - SHAPE B**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
C-4	75.85	72.76	70.09	67.84	66.01	64.39	62.94	61.66	60.64	59.55	58.82
C-4.5	82.60	79.25	76.38	73.91	71.98	70.16	68.63	67.30	66.07	64.93	64.10
C-5	90.09	86.47	83.19	80.58	78.48	76.46	74.74	73.38	72.04	70.77	69.83
C-5.5	98.29	94.13	90.71	87.91	85.54	83.44	81.48	79.94	78.53	77.15	76.15
C-6	112.14	107.57	103.52	100.29	97.62	95.15	93.09	91.21	89.70	88.06	86.94
C-6.5	123.42	118.35	114.05	110.41	107.44	104.75	102.35	100.36	98.62	96.96	95.65
C-7	135.82	130.17	125.40	121.43	118.23	115.21	112.63	110.46	108.49	106.70	105.19
C-7.5	156.11	149.67	144.30	139.67	135.92	132.50	129.59	127.03	124.86	122.66	121.07
C-8	179.20	171.83	165.58	160.28	156.03	152.08	125.49	145.82	143.28	140.83	139.00

**"C" CONSTRUCTION - SHAPE B**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
C-4	57.96	56.63	55.57	54.48	53.81	53.03	52.38	51.85	51.41	51.00	50.20
C-4.5	63.20	61.71	60.54	59.46	58.59	57.82	57.09	56.53	56.03	55.60	54.71
C-5	68.89	67.31	65.96	64.75	63.81	63.00	62.28	61.59	61.04	60.64	59.59
C-5.5	75.06	73.39	71.93	70.62	69.62	68.67	67.14	67.14	66.57	66.07	64.96
C-6	85.73	83.79	82.12	80.60	79.55	78.46	80.18	76.67	75.97	75.47	74.19
C-6.5	94.29	92.26	90.45	88.67	87.48	86.35	85.27	84.35	83.71	83.05	81.70
C-7	103.82	101.46	99.36	97.54	96.23	94.88	93.84	92.83	91.99	91.33	89.84
C-7.5	119.39	116.70	114.33	112.18	110.61	109.14	107.88	106.70	105.81	104.98	103.36
C-8	137.01	133.88	131.20	128.75	127.02	125.24	123.81	122.57	121.49	120.50	118.61

SINGLE - FAMILY RESIDENTIAL  
CONVENTIONAL TYPE  
SQUARE FOOT AREA COST TABLES

**"C" CONSTRUCTION - SHAPE C**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
C-4	78.12	74.93	72.34	70.16	68.14	66.49	65.15	64.00	62.81	61.74	60.96
C-4.5	85.17	81.66	78.81	76.46	74.31	72.51	71.05	69.67	68.56	67.33	66.46
C-5	92.81	89.07	85.94	83.34	80.94	79.10	77.40	75.95	74.66	73.45	72.48
C-5.5	101.17	97.03	93.69	90.83	88.27	86.17	84.34	82.80	81.36	80.01	78.98
C-6	115.52	110.86	106.89	103.71	100.73	98.43	96.37	94.54	92.93	91.45	90.16
C-6.5	127.11	121.87	117.70	114.13	110.91	108.24	106.04	104.03	102.28	100.57	99.22
C-7	139.77	134.14	129.48	125.58	121.98	119.12	116.62	114.45	112.48	110.60	109.11
C-7.5	160.75	154.30	148.90	144.42	140.39	137.01	134.12	131.65	129.34	127.22	125.52
C-8	184.60	177.09	170.92	165.78	161.02	157.29	154.03	151.04	148.51	146.00	144.11

**"C" CONSTRUCTION - SHAPE C**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
C-4	60.12	58.85	57.67	56.82	55.99	55.27	54.65	54.11	53.56	53.25	52.12
C-4.5	65.63	64.12	62.93	61.92	61.01	60.23	59.54	58.98	58.40	57.97	56.84
C-5	71.46	69.85	68.63	67.38	66.48	65.65	64.89	64.26	63.66	63.22	61.93
C-5.5	77.90	76.16	74.72	73.50	72.50	71.63	70.74	70.09	69.41	68.94	67.41
C-6	88.98	87.04	85.34	83.87	82.77	81.75	80.79	80.03	79.27	78.80	77.00
C-6.5	97.89	95.78	93.91	92.36	91.08	89.99	88.87	87.99	87.24	86.54	84.74
C-7	107.72	105.35	103.33	101.63	100.23	98.99	97.75	96.85	95.91	95.25	93.28
C-7.5	123.89	121.13	118.82	116.86	115.23	113.75	112.46	111.34	110.30	109.50	107.28
C-8	142.22	139.06	136.32	134.10	132.22	130.59	129.12	127.89	126.72	125.81	123.11

**"C" CONSTRUCTION - SHAPE D**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
C-4	80.37	77.18	74.61	72.27	70.38	68.77	67.38	66.07	65.02	64.06	63.14
C-4.5	87.62	84.21	81.33	78.80	76.81	74.93	73.50	72.04	70.85	69.76	68.83
C-5	95.57	91.70	88.65	85.89	83.62	81.66	80.04	78.53	77.28	76.08	75.03
C-5.5	104.16	100.02	96.60	93.63	91.25	89.07	87.30	85.61	84.24	82.92	81.75
C-6	118.86	114.18	110.30	106.87	104.14	101.68	99.71	97.64	96.13	94.68	93.39
C-6.5	130.84	125.58	121.35	117.59	114.57	111.88	109.68	107.46	105.78	104.18	102.70
C-7	143.95	138.16	133.53	129.38	126.05	123.05	120.66	118.28	116.37	114.59	113.03
C-7.5	165.58	158.94	153.55	148.84	144.97	141.57	138.74	136.09	133.84	131.76	129.98
C-8	190.03	182.45	176.24	170.86	166.35	162.45	159.32	156.11	153.66	151.29	149.11

**"C" CONSTRUCTION - SHAPE D**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
C-4	62.30	61.01	59.87	58.94	58.06	57.40	56.67	56.21	55.79	55.29	54.64
C-4.5	67.95	66.48	65.32	64.24	63.37	62.63	61.74	61.31	60.81	60.27	59.50
C-5	74.05	72.50	71.19	70.05	68.95	68.21	67.33	66.80	66.27	65.68	64.85
C-5.5	80.76	78.99	77.51	76.35	75.22	74.35	73.47	72.81	72.27	71.68	70.70
C-6	92.17	90.25	88.61	87.16	85.80	84.87	83.84	83.20	82.54	81.85	80.73
C-6.5	101.45	99.27	97.45	95.90	94.42	93.39	92.30	91.46	90.76	90.02	88.84
C-7	111.58	109.24	107.17	105.44	103.96	102.74	101.56	100.69	99.89	99.02	97.73
C-7.5	128.32	125.61	123.29	121.31	119.49	118.23	116.75	115.77	114.86	113.90	112.36
C-8	147.29	144.26	141.57	139.23	137.23	135.60	133.98	132.87	131.88	130.82	128.96

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-1 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Redwood mudsills on grade
<b>Floor Structure</b> Joists: 2" x 4" or 6", 24" o.c. Sub-Floor: None
<b>Walls and Exterior</b> Framing: 1" x 12" vertical boards; 2" x 4" top and bottom plates Cover: 1" x 12" vertical boards with 1" x 2" battens Windows: Sliding barn sash Front Door: 1-3/8" single panel
<b>Roof</b> Framing: 2" x 4" rafters, 32" o.c. Cover: Rolled roofing Overhang: 12", unsealed Gutters: None
<b>Floor Finishes</b> 1" x 4" or 6" Douglas Fir tongue and groove
<b>Interior Finish</b> 1" x 12" boards; open ceiling
<b>Interior Detail</b> Interior Doors: 1-3/8" single panel Trim: None Closets: None
<b>Bath Detail</b> None
<b>Kitchen</b> Small amount of painted Douglas Fir Drain Board: Douglas Fir
<b>Plumbing</b> Two low-cost fixtures
<b>Special Features</b> None
<b>Electrical</b> Knob and tube wiring; one drop cord per room

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-2 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Light nonreinforced concrete
<b>Floor Structure</b> Joists: 2" x 6", 24" o.c. Sub-Floor: None
<b>Walls and Exterior</b> Framing: 1" x 12" boards; 2" x 4" top and bottom plate; 2" x 4" on either side of openings; 4" x 4" in corners; 2" x 4" center nail tie Cover: 1" x 12" vertical boards with 1" x 2" battens Windows: Wood casements, painted Front Door: 1-3/8", 2 to 4 panels
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: Wood shingles Overhang: 12", unsealed Gutters: None
<b>Floor Finishes</b> 1" x 4" tongue and groove Douglas Fir; print linoleum in kitchen
<b>Interior Finish</b> 1" x 12" boards with 2 coats lead and oil paint on walls Wallboard or plywood on ceilings
<b>Interior Detail</b> Interior Doors: 1-3/8" single panel Trim: None Closets: None
<b>Bath Detail</b> Number: One Floors: Linoleum Walls: Painted 1" x 12" boards Shower: None
<b>Kitchen</b> Base Cabinet: 6' Douglas Fir, painted Wall Cases: Small area Douglas Fir, painted Drain Board: 6" linoleum squares
<b>Plumbing</b> Four fair quality fixtures; water heater
<b>Special Features</b> None
<b>Electrical</b> Knob and tube wiring; simple fixtures in living and dining rooms; drop cords in other rooms

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-3 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Concrete piers
<b>Floor Structure</b> Joists: 2" x 6", 24" o.c. Sub-Floor: None
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 24" o.c. Sheathing: None Cover: 1/2" redwood siding, painted Windows: Wood casements, painted Front Door: 1-3/8" stock, two panels
<b>Roof</b> Framing: 2" x 4" rafters, 24" to 32" o.c. Cover: Rolled roofing Overhang: 12", unsealed Gutters: None
<b>Floor Finishes</b> 1" x 4" Douglas Fir tongue and groove; print linoleum in kitchen
<b>Interior Finish</b> Wallboard, plaster board, or plywood, painted
<b>Interior Detail</b> Interior Doors: 1-3/8" stock, single panel Trim: One member baseboard, painted Closets: One closet per bedroom with minimum shelving
<b>Bath Detail</b> Number: One Floors: Print linoleum Walls: Wallboard, painted Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 6' Douglas Fir, painted Wall Cases: Small area Douglas Fir, painted Drain Board: 6" wood squares
<b>Plumbing</b> Four fair quality fixtures; water heater
<b>Special Features</b> None
<b>Electrical</b> Knob and tube wiring; simple fixtures in living and dining rooms; drop cords in other rooms

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-4 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Light concrete
<b>Floor Structure</b> Joists: 2" x 4", 24" o.c. Sub-Floor: None
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: None Cover: 1/2" redwood siding painted; light stucco Windows: Wood casements or double hung, painted Front Door: 1-3/8" stock, two or four panels
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: 3 ply built-up 15# felt, mopped Overhang: 16", unsealed Gutters: None
<b>Floor Finishes</b> 1" x 4" Douglas Fir tongue and groove; print linoleum in kitchen
<b>Interior Finish</b> Two coats of sand plaster on wood or gypsum lath glue size and calcimine
<b>Interior Detail</b> Interior Doors: 1-3/8" stock, single panel Trim: One member Douglas Fir, painted Closets: One closet per bedroom with minimum shelving
<b>Bath Detail</b> Number: One Floors: Print linoleum Walls: Wallboard, painted Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 6' Douglas Fir, painted Wall Cases: Small area Douglas Fir, painted Drain Board: 6" wood or linoleum squares
<b>Plumbing</b> Four fair quality fixtures; laundry tray; water heater
<b>Special Features</b> None
<b>Electrical</b> Knob and tube or Romex wiring; simple fixtures



**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-5 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Standard concrete
<b>Floor Structure</b> Joists: 2" x 6", 16" o.c. Sub-Floor: 1" x 6" or 8" in living room
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: Line wire and paper Cover: 1" stucco or 1" x 6" wood siding painted Windows: Painted wood, double hung Front Door: 1-3/8" stock, four rectangular panels
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: Wood shingles or average composition shingles Overhang: 16", unsealed Gutters: Painted galvanized iron over entrances
<b>Floor Finishes</b> Oak hardwood in living room; print linoleum in kitchen; 1" x 4" tongue and groove Douglas Fir in balance
<b>Interior Finish</b> Colored interior stucco in living room, sand plaster calcimine on balance
<b>Interior Detail</b> Interior Doors: 1 3/8" stock, one panel Trim: One member base, painted Closets: One closet for each bedroom with painted shelving and hook strip
<b>Bath Detail</b> Number: One Floors: Print linoleum Walls: Wall plaster, painted Shower: None
<b>Kitchen</b> Base Cabinet: 6' Douglas Fir, painted Wall Cases: 20" sq. ft. Douglas Fir, painted Drain Board: 6" low-cost ceramic tile
<b>Plumbing</b> Four average quality fixtures; a single laundry tray; water heater
<b>Special Features</b> None
<b>Electrical</b> Romex wiring; simple fixtures

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-6 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Joists: 2" x 6", 16" o.c. Sub-Floor: 1" x 6" or 8"
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: Line wire and paper Cover: 1" stucco or 1" clear heart redwood Windows: Wood double hung, painted; steel or aluminum casements Front Door: 1-3/4" hardwood veneer slab
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: Wood or good composition shingles Overhang: 16" unsealed Gutters: Painted galvanized iron over entrances
<b>Floor Finishes</b> 1/2" x 2" oak; inlaid linoleum in kitchen
<b>Interior Finish</b> Two coats plaster with putty finish; colored stucco or 1/2" gypsum board and texture; small amount of soft wood wainscot
<b>Interior Detail</b> Interior Doors: Stock one panel or slab Trim: One member base, painted Closets: 15 linear ft. closet shelving with hook strip and pole; 15 linear ft. linen closet shelving
<b>Bath Detail</b> Number: One Floors: Average ceramic tile or linoleum Walls: Wall plaster, painted Shower: Over tub with average ceramic tile wainscot
<b>Kitchen</b> Base Cabinet: 8' white pine, painted Wall Cases: 36" sq. ft. white pine, painted Drain Board: 8" average ceramic tile
<b>Plumbing</b> Five medium-priced fixtures; single laundry tray; water heater
<b>Special Features</b> None
<b>Electrical</b> Romex or knob and tube; medium priced fixtures

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-7 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Joists: 2" x 8", 16" o.c. Sub-Floor: 1" x 6" or 8"
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: 1/2" gypsum or insulated board ; 1" x 8" clear heart redwood rustic painted or stained; good cedar shakes or shingles painted or stained Windows: Wood, double hung; steel sash Front Doors: 1-3/4" good pine or wood veneer
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: Good wood or asbestos shingles Overhang: Boxed or finished eaves Gutters: Over entrances
<b>Floor Finishes</b> 1/2" x 2" tongue and groove select plain oak; inlaid linoleum in kitchen
<b>Interior Finish</b> Good plaster, white putty coat finish; some hardwood veneer paneling; some average wallpaper and enamel in kitchen
<b>Interior Detail</b> Interior Doors: Stock slab or six flat panel Trim: One member pine base and shoe, painted Closets: 20 linear feet of closet shelving with hook strip and pole; 15 linear feet of linen closet shelving
<b>Bath Detail</b> Number: One and one-half Floors: Average ceramic tile in main; good linoleum in half bath Walls: Hard plaster with enamel Shower: 6" average ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 10' good pine or hardwood veneer Wall Cases: 36 sq. ft. good pine or hardwood veneer Drain Board: 10' average ceramic tile; 14" splash
<b>Plumbing</b> Six standard fixtures; double laundry tray; water heater
<b>Special Features</b> Picture window; French doors; garbage disposer; kitchen exhaust vent; 4' ceramic tile top vanity in main bath
<b>Electrical</b> Romex wiring; average fixtures with a special fixture in dining room

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-8 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Joists: 2" x 8", 16" o.c. Sub-Floor: 1" x 4" tongue and groove
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: 2" x 6" or 8" boards Cover: Good 1" stucco, 1" x 10" clear heart redwood, or good cedar shingles Windows: Good wood double hung; good steel sash, painted Front Doors: 1-3/4" Philippine Mahogany
<b>Roof</b> Framing: 2" x 6" rafters, 24" o.c. Cover: 3/4" shakes, tile, or asbestos Overhang: Boxed eaves Gutters: Painted galvanized iron at all eaves
<b>Floor Finishes</b> 13/16" select plain oak; heavy inlaid linoleum in kitchen
<b>Interior Finish</b> Two coats plaster, smooth white putty coat finish; coved ceilings; small amount of good hardwood veneer paneling; some good quality wallpaper
<b>Interior Detail</b> Interior Doors: Philippine Mahogany or pine slab doors or 6 panel flat doors Trim: Two member pine base and shoe; some good hardwood Closets: Ample closet space and linen shelving
<b>Bath Detail</b> Number: One bath for two bedrooms Floors: Good ceramic tile Walls: Hard plaster and enamel Shower: 6" good ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 10' good hardwood veneer Wall Cases: Ample good hardwood Drain Board: Good ceramic tile
<b>Plumbing</b> Eight or more good fixtures; double laundry tray; two water heaters
<b>Special Features</b> Custom picture window; 4' ceramic tile top vanity in each bath; deluxe range hood and fan, built-in oven and range, garbage disposer; Formica breakfast bar
<b>Electrical</b> Romex wiring; good fixtures

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-9 QUALITY**

**CONVENTIONAL**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Joists: 2" x 10", 16" o.c. Sub-Floor: 1" x 4" tongue and groove
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: 1" x 6" or 8" boards Cover: Good 1" stucco, 1" x 10" good redwood, some brick or stone veneer on front wall Windows: Good wood or steel sash, painted Front Doors: Good 2" hardwood
<b>Roof</b> Framing: 2" x 6" rafters, 16" o.c. Cover: 3/4" to 1-1/2" shake; adobe tile Overhang: Boxed eaves Gutters: Good quality at all eaves
<b>Floor Finishes</b> Clear matched oak or good carpet in living, dining and bedrooms; terrazzo in entry; battleship linoleum, good sheet vinyl, or solid vinyl tile in family room, kitchen, utility room
<b>Interior Finish</b> Good plaster, putty coat finish; ornamental acoustic plaster ceilings; good hardwood veneer paneling in den, family room and entry; some good wallpaper
<b>Interior Detail</b> Interior Doors: Matched hardwood or six panel raised Trim: Hardwood to match paneling Closets: Extensive closets with cupboards and storage drawers
<b>Bath Detail</b> Number: 1-1/2 for each two bedrooms Floors: Good ceramic tile Walls: Good ceramic tile wainscot, hard plaster and enamel Shower: Good ceramic tile with good glass door
<b>Kitchen</b> Base Cabinet: 12' or more matched hardwood veneer Wall Cases: Many; matched hardwood veneer Drain Board: Tile or good Formica
<b>Plumbing</b> Copper tubing; 10 or more good fixtures; double laundry tray; two or more water heaters
<b>Special Features</b> Several custom picture windows; 6' ceramic tile vanity in each bath; built-in range, oven, range hood and fan, dishwasher, garbage disposer, breakfast bar and pantry
<b>Electrical</b> Romex wiring; good fixtures with good chandelier in dining room

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>D-10 QUALITY</b>	<b>CONVENTIONAL</b>
<b>Foundation</b> Reinforced concrete	
<b>Floor Structure</b> Joists: 2" x 10", 16" o.c. Sub-Floor: 1" x 4" tongue and groove	
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: 1" x 4" boards Cover: Good wood siding or masonry veneer Windows: Best quality wood or steel sash Front Doors: Best hardwood, double	
<b>Roof</b> Framing: 2" x 6" rafters, 16" o.c. Cover: Adobe tile or slate Overhang: Boxed eaves Gutters: Good quality at all eaves	
<b>Floor Finishes</b> Special matched oak or very good carpet in living, dining, and bedrooms; good terrazzo in entry; rubber, cork, or solid vinyl tile in kitchen, family room, and utility room	
<b>Interior Finish</b> Best plaster, putty coat finish; ornamental acoustic plaster ceilings; matched hardwood paneling in entry, dining room, den, family room, and living room; extensive use of best paint, vinyl, and cloth wall covers	
<b>Interior Detail</b> Interior Doors: Good hardwood or six panel raised panel Trim: Good detailed pine; hardwood to match paneling Closets: Extensive with cupboards above and drawers below	
<b>Bath Detail</b> Number: One for each bedroom Floors: Good ceramic tile Walls: Good ceramic tile Shower: Good ceramic tile with good glass door	
<b>Kitchen</b> Base Cabinet: Good matched hardwood Wall Cases: Good matched hardwood Drain Board: Good ceramic tile	
<b>Plumbing</b> Copper tubing; 12 or more very good fixtures; double laundry tray; three or more water heaters	
<b>Special Features</b> Several ornate picture windows; best quality built-in oven, range, dishwasher, range hood and fan, garbage disposer, breakfast bar, pantry, and special baths	
<b>Electrical</b> Romex or conduit wiring; very good fixtures; expensive chandelier in dining room	

SINGLE - FAMILY RESIDENTIAL  
CONVENTIONAL TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE A**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-1	49.51	46.01	43.33	41.34	39.62	38.26	37.15	36.17	35.32	34.70	34.03
D-1.5	54.38	50.49	47.52	45.34	43.53	42.06	40.80	39.72	38.77	38.16	37.39
D-2	59.69	55.44	52.28	49.83	47.86	46.16	44.78	43.57	42.65	41.83	41.07
D-3	65.50	60.87	57.35	54.71	52.51	50.73	49.14	47.87	46.83	45.95	45.13
D-3.5	71.93	66.80	63.01	60.09	57.66	55.66	53.98	52.59	51.42	50.44	49.51
D-4	78.98	73.39	69.14	65.92	63.26	61.04	59.24	57.72	56.47	55.44	54.38
D-4.5	86.70	80.51	75.92	72.44	69.54	67.03	65.08	63.41	62.00	60.81	59.69

**"D" CONSTRUCTION - SHAPE A**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	79.48	76.34	73.61	71.42	69.61	68.02	66.76	65.50	64.47	63.55	62.70
D-5.5	87.29	83.85	80.88	78.48	76.44	74.67	73.20	71.93	70.74	69.72	68.83
D-6	100.31	96.47	92.99	90.28	87.91	85.93	84.20	82.74	81.44	80.16	79.11
D-6.5	111.24	106.77	103.07	100.05	97.43	95.23	93.35	91.68	90.19	88.91	87.84
D-7	123.30	118.45	114.26	110.89	107.96	105.54	103.51	101.63	99.98	98.50	97.34
D-7.5	142.88	137.17	132.32	128.41	125.04	122.23	119.91	117.66	115.91	114.14	112.69

**"D" CONSTRUCTION - SHAPE A**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	62.01	60.73	59.69	58.81	57.97	57.35	56.67	56.21	55.83	55.44	54.71
D-5.5	68.09	66.71	65.50	64.64	63.72	62.94	62.27	61.71	61.32	60.87	60.09
D-6	78.29	76.67	75.36	74.24	73.22	72.38	71.61	71.01	70.54	69.99	69.12
D-6.5	86.87	84.99	83.53	82.29	81.26	80.28	79.37	78.74	78.18	77.57	76.61
D-7	96.23	94.20	92.52	91.25	89.98	88.98	88.00	87.25	86.68	85.93	84.87
D-7.5	111.46	109.15	107.28	105.78	104.25	103.04	101.89	101.06	100.36	99.58	98.35

**"D" CONSTRUCTION - SHAPE A**

Class	1300	1400	1500	1600	1700	1800	2000	2200	2400	2600	2800
D-8	145.25	142.63	140.27	138.13	136.49	135.01	132.12	129.88	128.47	126.34	124.75
D-8.5	173.98	170.81	167.93	165.43	163.47	161.54	158.21	155.55	153.77	151.18	149.41
D-9	247.56	243.04	239.06	235.50	232.66	230.00	225.14	221.20	218.91	215.25	212.67
D-9.5	367.53	360.88	354.96	349.57	345.38	341.50	334.32	328.66	325.00	319.57	315.65
D-10	437.90	429.93	422.84	416.62	411.62	406.95	398.42	391.78	387.22	380.80	376.21

**"D" CONSTRUCTION - SHAPE A**

Class	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
D-8	123.45	122.43	121.54	120.58	119.76	119.28	118.73	118.22	117.96	117.36	117.19
D-8.5	147.86	146.63	145.52	144.47	143.32	142.66	142.17	141.48	141.14	140.51	140.37
D-9	210.50	208.71	207.20	205.59	203.96	202.98	202.39	201.33	200.96	200.03	199.67
D-9.5	312.52	309.87	307.61	305.19	302.91	301.43	300.44	298.97	298.33	296.99	296.57
D-10	372.39	369.24	366.54	363.79	360.96	359.23	356.37	354.30	353.91	353.45	

SINGLE - FAMILY RESIDENTIAL  
CONVENTIONAL TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE B**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-1	50.54	46.97	44.29	42.11	40.42	39.05	37.86	37.05	36.14	35.44	34.74
D-1.5	55.56	51.59	48.61	46.21	44.37	42.95	41.69	40.58	39.62	38.99	38.18
D-2	60.96	56.59	53.39	50.80	48.74	47.13	45.71	44.68	43.56	42.73	41.88
D-3	66.96	62.23	58.67	55.68	53.54	51.76	50.19	49.04	47.86	46.95	46.06
D-3.5	73.49	68.25	64.38	61.18	58.81	56.86	55.10	53.82	52.57	51.57	50.54
D-4	80.76	74.95	70.68	67.23	64.54	62.42	60.54	59.04	57.66	56.57	55.56
D-4.5	88.63	82.25	77.59	73.82	70.85	68.55	66.46	64.85	63.30	62.05	60.96

**"D" CONSTRUCTION - SHAPE B**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	80.93	77.75	75.20	72.89	71.19	69.54	68.13	66.91	65.96	64.94	64.09
D-5.5	88.85	85.34	82.51	80.01	78.13	76.34	74.90	73.49	72.48	71.25	70.36
D-6	102.27	98.20	94.89	92.09	89.80	87.84	86.05	84.59	83.29	82.00	80.99
D-6.5	113.31	108.88	105.17	102.03	99.65	97.27	95.36	93.70	92.37	90.86	89.72
D-7	125.58	120.66	116.62	113.14	110.38	107.82	105.78	103.83	102.35	100.72	99.36
D-7.5	145.51	139.77	135.06	131.05	127.87	124.88	122.52	120.31	112.95	111.27	109.71

**"D" CONSTRUCTION - SHAPE B**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	63.41	62.05	61.01	60.12	59.50	58.81	58.14	57.66	57.22	56.86	56.15
D-5.5	69.62	68.21	66.96	66.08	65.35	64.64	63.84	63.30	62.81	62.42	61.65
D-6	80.11	78.48	77.00	76.03	75.13	74.24	73.49	72.86	72.35	71.89	70.99
D-6.5	88.75	86.93	85.46	84.20	83.28	82.29	81.44	80.75	80.11	79.57	78.63
D-7	98.36	96.40	94.65	93.35	92.30	91.25	90.32	89.46	88.75	88.19	87.19
D-7.5	114.02	111.63	109.68	108.18	106.96	105.78	104.58	103.70	102.81	102.19	100.97

**"D" CONSTRUCTION - SHAPE B**

Class	1300	1400	1500	1600	1700	1800	2000	2200	2400	2600	2800
D-8	148.42	145.67	143.24	141.09	139.40	138.00	135.21	132.77	131.04	129.48	127.96
D-8.5	177.63	174.43	171.48	169.03	166.93	165.15	161.93	158.98	156.83	155.01	153.13
D-9	252.94	248.23	244.13	240.57	237.60	235.11	230.45	226.33	223.20	220.65	217.91
D-9.5	375.53	368.67	362.60	357.09	352.90	348.99	342.24	336.08	331.45	327.58	323.59
D-10	447.51	439.22	431.99	425.64	420.45	415.91	407.73	400.50	395.04	390.41	385.70

**"D" CONSTRUCTION - SHAPE B**

Class	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
D-8	126.67	125.52	124.56	123.80	122.77	122.26	121.82	121.31	120.97	120.53	120.24
D-8.5	151.57	150.20	149.04	148.17	147.10	146.37	145.82	145.25	144.90	144.34	143.92
D-9	215.79	213.87	212.21	210.84	209.27	208.36	207.56	206.75	206.16	205.41	204.98
D-9.5	320.41	317.45	315.17	313.20	310.70	309.28	308.21	306.91	306.21	304.97	304.37
D-10	381.75	378.25	375.42	373.13	370.39	368.63	367.44	365.75	364.87	363.53	362.76



SINGLE - FAMILY RESIDENTIAL  
CONVENTIONAL TYPE  
SQUARE FOOT COST TABLES

**"D" CONSTRUCTION - SHAPE C**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-1	51.74	47.99	45.26	42.75	41.15	39.86	38.67	37.75	36.86	36.17	35.60
D-1.5	56.84	52.73	49.66	46.97	45.26	43.77	42.49	41.40	40.49	39.72	39.04
D-2	62.30	57.94	54.50	51.59	49.66	47.98	46.60	45.41	44.47	43.57	42.92
D-3	68.40	63.56	59.87	56.63	54.50	52.66	51.23	49.93	48.89	47.87	47.07
D-3.5	75.20	69.82	65.80	62.23	59.86	57.88	56.15	54.82	53.64	52.59	51.74
D-4	82.52	76.61	72.19	68.25	65.68	63.55	61.65	60.12	58.95	57.72	56.82
D-4.5	90.56	84.21	79.25	74.95	72.16	69.72	67.77	66.07	64.72	63.41	62.30

**"D" CONSTRUCTION - SHAPE C**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	82.39	79.25	76.56	74.37	72.51	71.07	69.67	68.40	67.33	66.48	65.65
D-5.5	90.51	87.01	84.05	81.65	79.57	78.04	76.50	75.20	73.92	73.04	72.13
D-6	104.01	100.13	96.69	93.93	91.62	89.77	87.99	86.45	85.01	83.92	82.94
D-6.5	115.32	110.95	107.18	104.14	101.58	99.42	97.54	95.83	94.28	93.07	91.93
D-7	127.83	122.92	118.82	115.38	112.49	110.23	108.09	106.21	104.49	103.13	101.92
D-7.5	148.02	142.39	140.93	133.69	130.38	127.77	125.28	123.06	122.75	119.49	118.02

**"D" CONSTRUCTION - SHAPE C**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	64.89	63.66	62.63	61.64	60.93	60.27	59.72	59.19	58.75	58.37	57.64
D-5.5	71.24	69.85	68.69	67.72	66.90	66.24	65.60	64.94	64.48	64.09	63.26
D-6	81.97	80.45	79.06	77.91	76.98	76.13	75.41	74.72	74.19	73.72	72.76
D-6.5	90.83	89.11	87.60	86.37	85.34	84.44	83.67	82.75	82.24	81.70	80.67
D-7	100.71	98.81	97.14	95.66	94.54	93.55	92.69	91.77	91.14	90.60	89.41
D-7.5	116.66	114.41	112.49	110.88	109.49	108.30	107.31	106.25	105.63	104.91	103.58

**"D" CONSTRUCTION - SHAPE C**

Class	1300	1400	1500	1600	1700	1800	2000	2200	2400	2600	2800
D-8	151.71	148.99	146.91	144.62	142.69	141.14	138.59	136.24	134.31	132.60	131.22
D-8.5	181.71	178.41	175.81	173.09	170.90	169.05	165.91	163.17	160.82	158.79	157.16
D-9	258.60	253.90	250.24	246.35	243.34	240.63	236.18	232.20	228.93	225.96	223.71
D-9.5	384.04	377.11	371.71	365.77	361.25	357.34	350.70	344.86	339.81	335.73	332.13
D-10	457.53	449.27	442.87	435.90	430.47	425.80	417.84	410.80	405.17	400.09	395.78

**"D" CONSTRUCTION - SHAPE C**

Class	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
D-8	130.03	128.79	127.96	127.13	126.11	125.56	125.04	124.56	124.20	123.76	123.45
D-8.5	155.65	154.20	153.13	152.18	151.01	150.39	149.78	149.04	148.72	148.11	147.86
D-9	221.58	219.60	217.91	216.58	214.85	214.02	213.08	212.21	211.60	210.76	210.50
D-9.5	329.12	325.94	323.59	321.54	319.10	317.63	316.37	315.17	314.31	313.02	312.52
D-10	392.17	388.29	385.70	383.21	380.21	378.65	377.07	375.42	374.43	372.98	372.39

SINGLE - FAMILY RESIDENTIAL  
CONVENTIONAL TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE D**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-1	52.92	49.14	46.12	43.77	42.11	40.73	39.57	38.65	37.79	37.12	36.44
D-1.5	58.09	53.98	50.58	47.98	46.21	44.74	43.47	42.42	41.43	40.78	40.01
D-2	63.76	59.21	55.59	52.73	50.80	49.05	47.70	46.56	45.61	44.74	43.88
D-3	70.07	65.08	61.01	57.88	55.68	53.88	52.38	51.15	49.98	49.09	48.24
D-3.5	76.94	71.39	67.02	63.56	61.18	59.19	57.56	56.13	54.92	53.94	53.00
D-4	84.39	78.40	73.53	69.75	67.23	64.96	63.14	61.63	60.39	59.20	58.10
D-4.5	92.77	86.15	80.65	76.56	73.82	71.32	69.41	67.68	66.26	65.01	63.81

**"D" CONSTRUCTION - SHAPE D**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	84.01	80.93	78.26	76.11	74.31	72.67	71.32	70.13	69.10	68.21	67.31
D-5.5	92.26	88.85	85.94	83.55	81.60	79.88	78.29	77.02	75.92	74.91	73.91
D-6	106.13	102.27	98.88	96.13	93.86	91.78	90.10	88.45	87.30	86.08	85.00
D-6.5	117.59	113.31	109.54	106.56	104.01	101.72	99.81	98.16	96.70	95.53	94.27
D-7	130.32	125.58	121.43	118.02	115.23	112.70	110.61	108.71	107.25	105.79	104.47
D-7.5	151.01	145.51	140.63	136.77	133.50	130.61	128.20	126.03	124.26	122.57	120.99

**"D" CONSTRUCTION - SHAPE D**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	66.57	65.35	64.24	63.41	62.65	62.00	61.36	60.90	60.47	60.05	59.24
D-5.5	73.09	71.74	70.54	69.62	68.77	68.08	67.33	66.86	66.37	65.90	65.10
D-6	84.15	82.52	81.12	80.11	79.09	78.27	77.45	76.95	76.34	75.80	74.81
D-6.5	93.27	91.45	89.94	88.75	87.66	86.74	85.93	85.22	84.61	84.07	83.01
D-7	103.32	101.32	99.71	98.36	97.15	96.11	95.15	94.51	93.74	93.16	91.93
D-7.5	120.39	117.48	115.47	114.02	112.61	111.34	110.30	109.39	108.61	107.78	106.56

**"D" CONSTRUCTION - SHAPE D**

Class	1300	1400	1500	1600	1700	1800	2000	2200	2400	2600	2800
D-8	155.10	152.44	149.99	148.05	146.27	145.05	142.22	139.85	138.01	136.38	135.01
D-8.5	185.68	182.44	179.60	177.30	175.05	173.62	170.30	167.48	165.26	163.22	161.54
D-9	264.26	259.81	255.62	252.29	249.26	247.12	242.41	238.26	235.20	232.40	230.00
D-9.5	392.47	385.76	379.59	374.61	370.07	366.85	360.04	353.90	349.42	344.99	341.50
D-10	467.61	459.75	452.25	446.59	441.07	437.23	428.85	421.71	416.22	411.14	406.95

**"D" CONSTRUCTION - SHAPE D**

Class	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
D-8	133.64	132.58	131.53	130.62	129.67	129.13	128.63	128.06	127.70	127.21	127.03
D-8.5	159.98	158.71	157.54	156.45	155.31	154.62	153.99	153.35	152.95	152.33	152.05
D-9	227.84	225.94	224.23	222.74	221.04	220.01	219.16	218.25	217.70	216.82	216.40
D-9.5	338.20	335.49	332.94	330.65	328.11	326.65	325.52	324.17	323.41	321.93	321.46
D-10	403.08	399.92	396.67	394.05	391.05	389.22	387.98	386.24	385.30	383.77	383.11

**SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL  
D-5 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL  
D-6 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL  
D-7 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL  
D-8 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL  
D-9 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
CONVENTIONAL  
D-10 QUALITY**

**PICTURES**



## AH 531.21: SINGLE-FAMILY RESIDENTIAL MODERN TYPE

Modern single-family residences are residences designed for permanent single-family occupancy and usually built after the year 1950. They differ from conventional single-family residences in that they have more bathrooms and more built-in features. These differences are defined by the respective building specifications.

Modern type specifications are divided into two categories per quality classification:

- Pre 1990: Generally for residences built between 1950 and 1990
- Post 1990: Generally for residences built after 1990

The development of divided specifications for modern residences is due to the distinct changes that have occurred in the construction industry in California in recent years. Items such as plumbing, roofing, and flooring which used to be found in a D7.5 or above, now are commonly found in a D6. The additional specifications recognize and accommodate the changes in the industry.

Square foot costs include all costs and components as described on page 1 of AH 531.10, the *Introduction* section of this handbook, and include all plumbing fixtures and built-ins as described in the applicable building specifications.

Shape classification may be determined by using the guides in the *Introduction* section of this handbook.

**NOTE:** The specifications for each quality class make a distinction between classes. This distinction often shows in the *quality* of a feature and not whether the feature is present. The same feature may exist in different classes, but the quality of the feature will help to determine the classification. Conversely, some features may be included in a particular classification, while in another class, the same feature must be treated as an additive.

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>PRE 1990</b>	<b>D-5 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame or reinforced concrete		
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Line wire and paper Cover: Light stucco Windows: Low-cost, aluminum, sliding Front Door: Low-cost slab		
<b>Roof</b> Framing: Standard wood frame Cover: Asphalt shingles or composition tar and pea gravel Overhang: 12" to 16", unsealed Gutters: Over entrances		
<b>Floor Finishes</b> Asphalt or vinyl asbestos tile		
<b>Interior Finish</b> Gypsum board taped, textured, and painted		
<b>Interior Detail</b> Interior Doors: Low-cost hardboard or wood slab Trim: Douglas Fir, painted Closets: Moderate amount; low-cost doors		
<b>Bath Detail</b> Number: Two, back to back Floors: Asphalt or vinyl asbestos tile Walls: Gypsum board and enamel Shower: Plastic faced hardboard		
<b>Kitchen</b> Base Cabinet: 8' low-cost hardwood veneer Wall Cases: Low-cost hardwood veneer Drain Board: 8' Formica		
<b>Plumbing</b> Galvanized pipe; 7 low-cost fixtures; washer outlet; water heater		
<b>Special Features</b> None		
<b>Electrical</b> Romex wiring; low-cost fixtures		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>POST 1990</b>	<b>D-5 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame or slab on grade reinforced concrete, vapor barrier, base 4" thick		
<b>Walls and Exterior</b> Framing: Standard wood or steel frame Sheathing: Line wire and paper, plywood, or particle board Cover: Light stucco; lap or wood siding Windows: Low-cost aluminum, sliding, double glaze Front Door: Low-cost wood or metal		
<b>Roof</b> Framing: Standard wood or steel frame Cover: Composition shingle Overhang: 0" to 12", unsealed Gutters: Over entrances		
<b>Floor Finishes</b> Low-cost vinyl, asphalt tile, linoleum, or carpeting throughout		
<b>Interior Finish</b> Gypsum board taped, textured, and painted Ceiling: Standard 8' or vaulted		
<b>Interior Detail</b> Interior Doors: Low-cost wood Trim: Wood or plastic Closets: Moderate amount; low-cost doors		
<b>Bath Detail</b> Number: 1 1/2 to 2 Floors: Low-cost vinyl, tile, or linoleum Walls: Gypsum board and enamel Shower & Tub: Fiberglass		
<b>Kitchen</b> Base Cabinet: Low-cost wood veneer Wall Cases: Low-cost wood veneer Drain Board: Low-cost Formica or tile		
<b>Plumbing</b> Galvanized, plastic, or copper pipe; 7 low-cost fixtures; washer outlet; water heater		
<b>Special Features</b> Low-cost sliding glass doors; low-cost drop- or slide-in range and oven; garbage disposer		
<b>Electrical</b> Cable wiring; low-cost fixtures		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>PRE 1990</b>	<b>D-6 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame		
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Line wire and paper Cover: Hardwood siding, wood shingles, or low-cost wood siding on front wall; average stucco on sides and rear Front Doors: Average quality slab		
<b>Roof</b> Framing: Standard wood frame Cover: Wood shingle, light shake, good composition shingles, or composition with tar and colored rock Overhang: 18", unsealed Gutters: 4" galvanized and painted at all eaves		
<b>Floor Finishes</b> Average quality 3/8" square edge hardwood; low-cost carpet in living room, dining room, hall, and bedrooms; average quality linoleum in kitchen, family room, breakfast room, and utility room		
<b>Interior Finish</b> Gypsum board taped, textured and painted; some wallpaper		
<b>Interior Detail</b> Interior Doors: Average quality, hollow core slab Trim: Douglas Fir, painted; low-cost hardwood Closets: Average amount; low-cost wood or metal doors		
<b>Bath Detail</b> Number: Two, back to back Floors: Linoleum Walls: Gypsum board and enamel Shower: Average ceramic tile or plastic coated hardwood with a glass door		
<b>Kitchen</b> Base Cabinet: 12' low-cost hardwood veneer Wall Cases: Low-cost hardwood veneer Drain Board: 12' average ceramic tile		
<b>Plumbing</b> Galvanized pipe; 7 average fixtures; washer outlet; water heater		
<b>Special Features</b> 6' sliding glass door; average quality built-in oven, range, dishwasher, garbage disposer, and range hood; 2' to 4' ceramic tile or Formica vanity in each bath		
<b>Electrical</b> Romex wiring; average fixtures		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>POST 1990</b>	<b>D-6 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame or slab on grade reinforced concrete, vapor barrier, base 4" thick		
<b>Walls and Exterior</b> Framing: Standard wood or steel frame Sheathing: Line wire and paper, plywood, or particle board Cover: Wood shingles or low-cost wood side or masonry trim on front wall; average stucco sides and rear Windows: Average quality aluminum or wood; slide or double hung, double glaze Front Door: Average quality metal or wood		
<b>Roof</b> Framing: Standard wood or steel frame Cover: Wood shingle, light wood shake, good composition shingle, or concrete shake or tile Overhang: 0" to 18", unsealed Gutters: Average quality at all eaves		
<b>Floor Finishes</b> Average quality hardwood, carpet, vinyl, ceramic tile, or linoleum throughout		
<b>Interior Finish</b> Gypsum board taped, textured, painted; some wallpaper; average quality paneling Decorative plant shelves Ceilings: Standard 8' or vaulted; low-cost fans		
<b>Interior Detail</b> Interior Doors: Average quality wood Trim: Wood or plastic Closets: Average amount; low-cost doors		
<b>Bath Detail</b> Number: Two Floors: Average quality vinyl or linoleum Walls: Gypsum board and enamel Shower & Tub: Fiberglass or average quality ceramic tile, with glass doors; twin basin vanities		
<b>Kitchen</b> Base Cabinet: Average cost wood veneer Wall Cases: Average cost wood veneer Drain Board: Average cost Formica or tile Some island cabinets without fixtures		
<b>Plumbing</b> Galvanized, plastic, or copper pipe; 7 average-cost fixtures; washer outlet; water heater		
<b>Special Features</b> Average quality sliding glass or French doors; average quality built-in oven, range, microwave, dishwasher, garbage disposer, range hood and fan; utility room/closet		
<b>Electrical</b> Cable wiring; average quality fixtures; some bedroom ceiling fixtures		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>PRE 1990</b>	<b>D-7 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame		
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Gypsum board Cover: Good hardboard or average wood siding with masonry veneer on front wall; good stucco on sides and rear Windows: Average aluminum Front Doors: 1-3/4" fir		
<b>Roof</b> Framing: Standard wood frame Cover: Medium shake or composition and large rock Overhang: 24", unsealed Gutters: 6" good quality at all eaves		
<b>Floor Finishes</b> Average ceramic or terrazzo in entry; average quality tongue and groove hardwood; average quality carpet in living, dining, hall, and bedrooms; average quality sheet vinyl in kitchen, family room, breakfast room, and utility room		
<b>Interior Finish</b> Gypsum board taped, textured, and painted; some wallpaper; average quality hardwood veneer in family room		
<b>Interior Detail</b> Interior Doors: Average quality hollow core slab Trim: Douglas Fir; painted; some hardwood Closets: Average amount, with average quality wood doors		
<b>Bath Detail</b> Number: Two Floors: Sheet vinyl Walls: Gypsum board and enamel; average ceramic tile over tub Shower: Average ceramic tile, with glass door		
<b>Kitchen</b> Base Cabinet: 16' average quality hardwood veneer Wall Cases: Average quality hardwood veneer Drain Board: 16' average ceramic tile or good Formica		
<b>Plumbing</b> Galvanized pipe; 7 good fixtures; single laundry tray; water heater		
<b>Special Features</b> 8' sliding glass door; average quality built-in oven, range, dishwasher, garbage disposer, and range hood and fan; 4' to 6' ceramic tile vanity in each bath		
<b>Electrical</b> Romex wiring; average quality fixtures		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>POST 1990</b>	<b>D-7 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame or slab on grade reinforced concrete, vapor barrier, base 4" thick		
<b>Walls and Exterior</b> Framing: Standard wood or steel frame Sheathing: Line wire and paper, plywood, or particle board Cover: Average stucco or wood siding, with brick or stone trim Windows: Vinyl framed wood or aluminum; slide or double hung, double glaze Front Doors: Single or double, good quality wood or metal; some glass trim		
<b>Roof</b> Framing: Standard wood or steel frame Cover: Medium wood shake, concrete shake or tile; good quality composition shingles Overhang: 0" to 24", sealed or unsealed Gutters: Good quality at all eaves		
<b>Floor Finishes</b> Good quality ceramic or terrazzo tile in entry; good quality hardwood, carpet, vinyl, linoleum, or ceramic tile throughout		
<b>Interior Finish</b> Gypsum board taped, textured, and painted; rounded corners; wallpaper; average quality paneling Decorative plant shelves and art niches Ceilings: Standard 8' to 10'; vaulted; cathedral; average cost fans		
<b>Interior Detail</b> Interior Doors: Average quality wood Trim: Wood or plastic Closets: Average amount with average quality doors; some walk-in		
<b>Bath Detail</b> Number: 2 or 2 1/2 Floors: Good quality vinyl, tile, or linoleum Walls: Gypsum board and enamel; wallpaper; good quality ceramic tile trim Shower & Tub: Fiberglass, acrylic, or good quality ceramic tile with glass doors Twin basin vanities and compartmentalized bath		
<b>Kitchen</b> Base Cabinet: Good quality veneer Wall Cases: Good quality veneer Drain Board: Good quality ceramic tile; some island cabinets with fixtures		
<b>Plumbing</b> Galvanized, plastic, or copper pipe; 8 good fixtures; washer outlet; water heater		
<b>Special Features</b> Multiple good quality sliding glass or French doors; good quality built-in oven, range, dishwasher, microwave, garbage disposer, range hood and fan; utility room with sink		
<b>Electrical</b> Cable wiring; good quality fixtures; some bedroom ceiling fixtures		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATION  
"D" CONSTRUCTION**

<b>PRE 1990</b>	<b>D-8 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame		
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Gypsum board or plywood Cover: Good wood siding with masonry veneer trim on front wall; good stucco on sides and rear Windows: Good aluminum Front Doors: 1-3/4" hardwood or good pine, double		
<b>Roof</b> Framing: Standard wood frame Cover: Heavy shake or adobe tile Overhang: 36", unsealed; 24", sealed Gutters: 8" good quality at all eaves		
<b>Floor Finishes</b> Terrazzo or mission tile in entry; good tongue and groove hardwood; good carpet in living, dining, and bedrooms; good sheet vinyl in kitchen, family room, breakfast room, and utility room		
<b>Interior Finish</b> Gypsum board with heavy texture and paint; some good wallpaper or vinyl wall cover; good hardwood veneer paneling in family room		
<b>Interior Detail</b> Interior Doors: Good hardwood veneer slab Trim: Douglas Fir, painted, with some hardwood Closets: Ample space; good solid wood doors; many linen closets		
<b>Bath Detail</b> Number: 2 1/2 Floors: Good ceramic tile Walls: Gypsum board with vinyl or foil wall cover; good ceramic tile over tub Shower: Good ceramic tile with glass doors		
<b>Kitchen</b> Base Cabinet: 20' good hardwood veneer Wall Cases: Ample good hardwood veneer Drain Board: 20' good ceramic tile or Formica		
<b>Plumbing</b> Copper tubing; 10 good fixtures; double laundry tray; two water heaters		
<b>Special Features</b> Two 8' sliding glass doors; good quality built-in oven, range, dishwasher, garbage disposer, range hood and fan, microwave oven, compactor, and wet bar; 4' to 6' ceramic tile vanity in each bath		
<b>Electrical</b> Romex wiring; good quality fixtures		



**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>POST 1990</b>	<b>D-8 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame or slab on grade reinforced concrete, vapor barrier, base 4" thick		
<b>Walls and Exterior</b> Framing: Standard wood or steel frame Sheathing: Line wire and paper, plywood, or particle board Cover: Good wood siding, masonry, or stucco Windows: Vinyl framed wood or aluminum; divided light; slide or double hung, double glaze Front Doors: Single or double, good quality decorative wood or metal; glass trim; side glass panels		
<b>Roof</b> Framing: Standard wood or steel frame Cover: Heavy wood shake, concrete shake, tile, or high definition composition roof Overhang: 0" to 24", sealed or unsealed Gutters: Good quality at all eaves		
<b>Floor Finishes</b> Terrazzo, mission, or quarry tile in entry; good hardwood, carpet, vinyl, slate, tile, or linoleum throughout		
<b>Interior Finish</b> Gypsum board with good texture and paint; custom decorative woodwork and molding; rounded corners; some good wallpaper, vinyl wall cover, or veneer paneling Ceilings: Standard 9' to 11', vaulted, crown molding, coffered, arched, or cathedral; good quality fans		
<b>Interior Detail</b> Interior Doors: Good quality wood Trim: Good quality wood Decorative plant shelves and art niches Closets: Good wood and mirrored doors; some walk-ins		
<b>Bath Detail</b> Number: 2 1/2 to 3 Floors: Good quality tile, vinyl, or linoleum Walls: Gypsum board and enamel; good wallpaper and ceramic tile Shower & Tub: Good acrylic or porcelain; good ceramic tile trim, with glass doors; glass block Twin basin vanities and compartmentalized bath		
<b>Kitchen</b> Base Cabinet: Good hardwood veneer Wall Cases: Good hardwood veneer; under cabinet lighting Drain Board: Good ceramic tile, cultured marble, granite, or Corian Island cabinets with fixtures		
<b>Plumbing</b> Galvanized, plastic, or copper pipe; 10 good fixtures; washer outlet; two water heaters		
<b>Special Features</b> Multiple sliding glass or French doors; good quality built-in double oven, range, dishwasher, garbage disposer, range hood and fan, microwave, compactor, and wet bar; utility room with laundry sink; pre-wired for security; walk-in pantry; hot water recirculator		
<b>Electrical</b> Cable wiring; good quality fixtures; bedroom ceiling fixtures; recessed lighting		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>PRE 1990</b>	<b>D-9 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Joists: 2" x 8" x 16" Sub-Floor: Plywood or 1" x 4" tongue and groove		
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Gypsum board or plywood, fully insulated to R-11 standards Cover: Good stucco or wood siding with extensive masonry veneer trim, or masonry veneer throughout Windows: Good steel sash with thermopane glass Front Doors: Single or double, good quality wood		
<b>Roof</b> Framing: 2" x 6" x 24" rafters Cover: Heavy shake or adobe tile Overhang: 36", unsealed, sealed, or boxed Gutters: Good quality 8" at all eaves		
<b>Floor Finishes</b> Terrazzo, hardwood, or mission tile in entry; highest quality carpet in living, dining, and bedrooms; good sheet vinyl in kitchen, family room, and utility room		
<b>Interior Finish</b> Gypsum board with heavy texture and paint; some wallpaper or grass cloth; good hardwood paneling in family room		
<b>Interior Detail</b> Interior Doors: Good hardwood veneer Trim: Good detailed pine and hardwood Closets: Ample space; good solid wood doors; many linen closets		
<b>Bath Detail</b> Number: One bath for every bedroom Floors: Good ceramic tile Walls: Gypsum board with vinyl or foil wall cover; good ceramic tile over tub Shower: Good ceramic tile with good glass doors		
<b>Kitchen</b> Base Cabinets: Good 20' hardwood Wall Cases: Good hardwood Drain Board: 20' good ceramic tile or good Formica Cooking island with fixtures		
<b>Plumbing</b> Copper tubing; 10 or more good fixtures; two or more water heaters		
<b>Special Features</b> Picture windows, leaded and frosted glass; best quality built-in double oven, microwave, range, dishwasher, and garbage disposer; ceramic tile vanity in each bath; breakfast and wet bar; walk-in pantry		
<b>Electrical</b> Romex wiring; good fixtures, with expensive chandelier in dining room		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>POST 1990</b>	<b>D-9 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Standard wood frame or slab on grade reinforced concrete, vapor barrier, base 4" thick		
<b>Walls and Exterior</b> Framing: Standard wood or steel frame, above code Sheathing: Gypsum board or plywood fully insulated Cover: Good stucco or wood siding with extensive masonry Windows: Good quality vinyl framed wood or aluminum; divided light; slide/double hung, double glaze Front Doors: Double, high quality wood or metal; leaded glass trim; side glass panels		
<b>Roof</b> Framing: Standard wood or steel frame Cover: Heavy wood shake; concrete shake or tile; slate; adobe tile Overhang: 0" to 36", unsealed, sealed, or boxed Gutters: Good quality at all eaves		
<b>Floor Finishes</b> Terrazzo, mission, marble, granite, or quarry tile in entry; high quality hardwood, carpet, vinyl, tile, inlaid wood, or linoleum throughout		
<b>Interior Finish</b> Gypsum board with good texture and paint; custom decorative woodwork and molding; quality wallpaper and wood paneling; masonry Ceilings: Standard 9' to 12', vaulted, coffered, boxed beam, or cathedral; rounded corners; crown molding; arched doorways; high quality fans		
<b>Interior Detail</b> Interior Doors: Good quality solid wood                      Trim: Good detailed wood Closets: High quality wood and mirrored doors; walk-ins		
<b>Bath Detail</b> Number: 3 to 4 Floors: High quality tile, vinyl, or linoleum Walls: Gypsum board and enamel; quality wallpaper; high quality quarry, terrazzo, or ceramic tile Shower & Tub: High quality acrylic or porcelain; extensive ceramic tile or marble trim, with glass doors; glass block; jetted tubs; multiple head showers with bench Twin basin vanities and compartmentalized bath		
<b>Kitchen</b> Base Cabinets: Quality hardwood Wall Cases: Quality hardwood; under cabinet lighting Drain Board: High quality ceramic tile, marble, granite, or Corian ; island cabinets with fixtures		
<b>Plumbing</b> Galvanized, plastic, copper pipe; 10 or more good quality fixtures; washer outlet; 2 or more water heaters		
<b>Special Features</b> Architecturally designed windows, leaded/frosted glass; multiple sliding glass/French doors; best quality built-in double oven, microwave, range, dishwasher, garbage disposer, hot water recirculator, compactor, wet bar; walk-in pantry; utility room & laundry sink; alarm & intercom systems; built-in vacuum; multiple fireplaces		
<b>Electrical</b> Cable wiring; good fixtures, with expensive chandeliers; good quality bedroom ceiling fixtures; extensive recessed lighting; special switches		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

<b>PRE 1990</b>	<b>D-10 QUALITY</b>	<b>MODERN</b>
<b>Foundation</b> Reinforced concrete		
<b>Floor Structure</b> Joists: 2" x 10" x 16" Sub-Floor: Plywood or 1" x 4" tongue and groove		
<b>Walls and Exterior</b> Framing: Heavy wood frame Sheathing: Gypsum board or plywood, fully insulated to R-19 standards Cover: Decorative stucco or heavy wood siding with extensive or full brick veneer Windows: Heavy steel sash with thermopane glass		
<b>Roof</b> Framing: 2" x 8" x 24" rafters, extensively cut-up with many dormers Cover: Heavy shake or adobe tile Overhang: 36", sealed or boxed Gutters: Excellent quality 8" at all eaves		
<b>Floor Finishes</b> Terrazzo, hardwood, or mission tile in entry; highest quality carpet in living, dining, and bedrooms; parquet hardwood in kitchen and family rooms; good sheet vinyl in utility room		
<b>Interior Finish</b> Gypsum board with heavy texture and paint; extensive wallpaper, grass cloth, and excellent wood paneling throughout		
<b>Interior Detail</b> Interior Doors: Excellent hardwood Trim: Excellent scrolled hardwood Storage: Cedar lined closets and extensive storage cabinets Extras: Spiral staircases; chandeliers in entry hall, dining, and family rooms		
<b>Bath Detail</b> Number: One bath for every bedroom Floors: Good ceramic tile Walls: Good ceramic tile wainscoting Shower: Fully tiled walls and ceiling		
<b>Kitchen</b> Extensive hardwood wall cabinets; fixtures on cooking island; butcher block; extensive good ceramic tile drain board		
<b>Plumbing</b> Copper tubing; 15 or more quality fixtures; two or more water heaters		
<b>Special Features</b> Picture windows, leaded and frosted glass; highest quality built-in double oven, microwave, range, dishwasher, and garbage disposer; ceramic tile vanity in each bath; jetted tub in master bath; walk-in pantry; built-in cases		
<b>Electrical</b> Romex wiring; excellent fixtures in each room		

**SINGLE-FAMILY RESIDENTIAL  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**POST 1990**

**D-10 QUALITY**

**MODERN**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or slab on grade reinforced concrete, vapor barrier, base 4" thick
<b>Walls and Exterior</b> Framing: Standard wood or steel frame, above code Sheathing: Gypsum board or plywood fully insulated Cover: Decorative stucco or heavy wood siding with extensive or full brick veneer Windows: Excellent quality vinyl framed wood/aluminum; divided light; slide/double hung, double glaze Front Doors: Double, highest quality wood or metal; leaded glass trim; side glass panels
<b>Roof</b> Framing: Standard wood or steel frame; multiple roof pitch Cover: Heavy wood shake, adobe tile, copper, or slate Overhang: 0" to 36", unsealed, sealed, or boxed Gutters: Excellent quality at all eaves
<b>Floor Finishes</b> Terrazzo, mission, quarry, marble, granite, or slate tile in entry; highest quality hardwood, parquet, plank, or inlaid wood; fine carpeting or linoleum throughout
<b>Interior Finish</b> Gypsum board with good texture and paint; custom decorative woodwork and molding; excellent quality wallpaper, wood paneling; cloth covering; extensive masonry Ceilings: Standard 9' to 12', vaulted, coffered, boxed beamed, or cathedral; rounded corners; crown molding; arched doorways; highest quality fans
<b>Interior Detail</b> Interior Doors: Excellent quality solid wood; decorative Trim: Good detailed wood; 4' wainscot Closets: Highest quality wood and mirrored doors; walk-ins; extensive shelving
<b>Bath Detail</b> Number: One per bedroom Floors: Highest quality tile, vinyl, slate, or linoleum Walls: Gypsum board, enamel; highest quality wallpaper; highest quality quarry, terrazzo, ceramic tile Shower & Tub: Highest quality acrylic or porcelain; extensive ceramic tile or marble trim, with glass doors; glass block; jetted tubs; multiple head showers with bench Multiple basin vanities and separate dressing rooms
<b>Kitchen</b> Custom cabinetry; under cabinet lighting Drain Board: Excellent quality ceramic tile, marble, granite, or Corian; island cabinets with fixtures
<b>Plumbing</b> Galvanized, plastic, copper pipe; 15 plus excellent quality fixtures; washer outlet; 2 or more water heaters
<b>Special Features</b> Architecturally designed windows, leaded and frosted glass; multiple sliding glass or French doors; best quality built-in double oven, microwave, range, dishwasher, garbage disposer, hot water recirculator, compactor, built-in refrigerator, and wet bar; walk-in pantry; utility room with laundry sink; alarm and intercom systems; built-in vacuum; multiple fireplaces; extensive fenestration; built-in steam bath and/or sauna
<b>Electrical</b> Cable wiring; excellent fixtures; extensive stylized and recessed lighting; expensive chandeliers; special switches

SINGLE - FAMILY RESIDENTIAL  
MODERN TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE A**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	83.51	79.99	77.11	74.62	72.67	70.92	69.41	68.02	66.96	65.92	65.08
D-5.5	91.85	88.00	84.84	82.12	79.94	78.04	76.34	74.78	73.68	72.51	71.63
D-6	105.79	101.42	97.74	94.61	92.16	89.93	87.98	86.17	84.87	83.57	82.42
D-6.5	117.54	112.60	108.58	105.06	102.30	99.81	97.62	95.78	94.28	92.83	91.57
D-7	130.50	124.92	120.50	116.62	113.59	110.89	108.45	106.27	104.63	103.06	101.64
D-7.5	151.47	145.05	139.84	135.38	131.77	128.65	125.89	123.35	121.51	119.57	117.99
D-8	177.10	169.74	163.56	158.32	154.13	150.48	147.22	144.34	142.12	139.96	138.01
D-8.5	202.95	194.51	187.44	181.41	176.71	172.47	168.73	165.38	162.83	160.34	158.08
D-9	276.49	264.91	255.36	247.11	240.67	234.93	229.87	225.31	221.87	218.41	215.43
D-9.5	395.67	379.11	365.40	353.64	344.37	336.09	328.90	322.31	317.45	312.65	308.21
D-10	455.02	435.99	420.11	406.64	396.01	386.56	378.21	370.68	365.04	359.52	354.51

**"D" CONSTRUCTION - SHAPE A**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	64.24	62.76	61.65	60.66	59.86	59.16	58.59	58.05	57.56	57.13	56.36
D-5.5	70.68	69.07	67.90	66.78	65.84	65.01	64.47	63.84	63.26	62.81	62.01
D-6	81.44	79.58	78.22	76.95	75.89	74.87	74.24	73.59	72.93	72.44	71.45
D-6.5	90.47	88.35	86.88	85.46	84.16	83.20	82.40	81.75	80.94	80.45	79.36
D-7	100.31	98.14	96.47	94.81	93.55	92.37	91.57	90.75	89.94	89.26	88.06
D-7.5	116.53	113.95	111.95	110.07	108.57	107.25	106.23	105.28	104.41	103.70	102.26
D-8	136.32	133.22	130.94	128.70	126.91	125.41	124.26	123.21	122.07	121.23	119.54
D-8.5	156.26	152.66	150.04	147.53	145.49	143.69	142.36	141.13	139.90	138.97	137.01
D-9	212.88	207.95	204.49	200.96	198.21	195.72	193.94	192.30	190.56	189.30	186.63
D-9.5	304.49	297.61	292.50	287.53	283.57	280.05	277.53	275.22	272.70	270.84	267.05
D-10	350.22	342.25	336.29	330.66	326.11	322.05	319.17	316.49	313.59	311.48	307.11

**"D" CONSTRUCTION - SHAPE A**

Class	4200	4400	4600	5000
D-6	70.40	70.25	69.76	69.07
D-6.5	78.65	78.03	77.46	76.71
D-7	87.25	86.55	85.96	85.10
D-7.5	101.34	100.52	99.82	98.81
D-8	119.57	118.60	117.77	116.59
D-8.5	135.77	134.68	133.75	132.40
D-9	184.95	183.47	182.18	180.37
D-9.5	264.64	262.52	260.68	258.08
D-10	304.34	301.90	299.78	296.78

SINGLE - FAMILY RESIDENTIAL  
MODERN TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE B**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	85.16	81.60	78.53	76.15	74.07	72.34	70.92	69.55	68.40	67.38	66.49
D-5.5	93.64	89.69	86.42	83.81	81.44	79.51	78.04	76.50	75.28	74.18	73.19
D-6	107.89	103.43	99.50	96.54	93.90	91.64	89.93	88.23	86.84	85.49	84.31
D-6.5	119.85	114.84	110.46	107.18	104.24	101.78	99.81	97.84	96.37	94.88	93.66
D-7	133.02	127.44	122.69	118.98	115.76	113.03	110.89	108.68	106.88	105.35	104.01
D-7.5	154.34	147.95	142.38	138.14	134.41	131.16	128.71	126.12	124.20	122.23	120.66
D-8	180.53	172.97	166.61	161.54	157.14	153.46	150.48	147.53	145.20	143.01	141.09
D-8.5	206.89	198.25	190.91	185.15	180.02	175.84	172.47	169.05	166.32	163.90	161.70
D-9	281.88	270.08	260.08	252.24	245.28	239.59	234.93	230.29	226.61	223.26	220.29
D-9.5	403.39	386.39	372.21	360.88	350.97	342.79	336.09	329.53	324.29	319.50	315.20
D-10	463.86	444.36	428.02	415.02	403.63	394.28	386.56	378.94	372.93	367.44	362.42

**"D" CONSTRUCTION - SHAPE B**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	65.65	64.26	63.22	62.26	61.41	60.66	60.09	59.50	59.01	58.59	57.95
D-5.5	72.20	70.73	69.55	68.40	67.49	66.78	66.07	65.48	64.94	64.47	63.72
D-6	83.27	81.45	80.13	78.91	77.89	76.95	76.13	75.41	74.80	74.24	73.46
D-6.5	92.45	90.52	89.02	87.60	86.42	85.46	84.51	83.74	83.06	82.40	81.57
D-7	102.64	100.40	98.83	97.24	95.92	94.81	93.87	92.93	92.25	91.57	90.59
D-7.5	119.09	116.54	114.69	112.94	111.34	110.07	108.95	107.87	107.00	106.23	105.06
D-8	139.37	136.38	134.16	132.10	130.23	128.70	127.49	126.22	125.19	124.26	122.94
D-8.5	159.62	156.29	153.77	151.39	149.29	147.53	146.06	144.64	143.46	142.36	140.88
D-9	217.49	212.93	209.54	206.22	203.35	200.96	198.96	197.04	195.44	193.94	191.94
D-9.5	311.26	304.60	299.68	295.15	291.05	287.53	284.76	281.93	279.68	277.53	274.68
D-10	357.93	350.31	344.67	339.38	334.64	330.66	327.43	324.28	321.62	319.17	315.82

**"D" CONSTRUCTION - SHAPE B**

Class	4200	4400	4600	5000
D-6	72.81	72.22	71.73	71.00
D-6.5	80.85	80.19	79.64	78.83
D-7	89.77	89.07	88.44	87.55
D-7.5	104.11	103.28	102.56	101.53
D-8	121.84	120.87	120.03	118.82
D-8.5	139.82	138.07	137.02	136.07
D-9	190.22	188.69	187.37	185.50
D-9.5	272.19	271.25	269.35	266.65
D-10	313.00	310.48	309.51	306.42

SINGLE - FAMILY RESIDENTIAL  
MODERN TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE C**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	86.50	83.00	80.01	77.59	75.50	73.86	72.34	71.05	69.75	68.83	67.94
D-5.5	95.17	91.28	88.01	85.33	83.10	81.31	79.51	78.13	76.75	75.73	74.72
D-6	109.66	105.18	101.45	98.36	95.73	93.66	91.64	90.02	88.37	87.27	86.08
D-6.5	121.79	116.81	112.61	109.24	106.27	103.94	101.78	99.98	98.19	96.91	95.61
D-7	135.16	129.64	125.03	121.27	117.99	115.43	113.03	110.98	109.01	107.63	106.15
D-7.5	156.86	150.47	145.11	140.63	137.02	134.02	131.16	128.78	126.49	124.87	123.22
D-8	183.52	176.03	169.80	164.59	160.30	156.72	153.46	150.56	148.02	146.05	144.13
D-8.5	210.30	201.72	194.55	188.55	183.71	179.56	175.84	172.57	169.63	167.36	165.13
D-9	286.48	274.80	265.05	256.92	250.25	244.63	239.56	235.09	231.06	227.96	225.03
D-9.5	409.91	393.19	379.27	367.66	358.08	350.05	342.79	336.44	330.63	326.19	321.94
D-10	471.35	452.16	436.18	422.81	411.84	402.56	394.28	386.84	380.21	375.11	370.24

**"D" CONSTRUCTION - SHAPE C**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	65.54	64.32	63.23	61.93	61.48	60.92	60.36	59.83	59.29	58.91	58.27
D-5.5	73.86	72.34	71.16	69.55	69.07	68.36	67.77	67.16	66.48	66.08	65.35
D-6	85.18	83.33	81.94	80.13	79.58	78.81	78.02	77.40	76.65	76.22	75.27
D-6.5	94.51	92.51	91.02	89.02	88.35	87.47	86.73	85.97	85.01	84.61	83.57
D-7	104.95	102.74	101.02	98.83	98.14	97.14	96.23	95.52	94.51	93.89	92.78
D-7.5	121.82	119.27	117.14	114.69	113.95	112.69	111.69	110.77	109.68	109.01	107.70
D-8	142.51	139.52	137.13	134.16	133.22	131.85	130.62	129.52	128.24	127.51	125.93
D-8.5	163.28	159.88	157.16	153.77	152.66	151.09	149.68	148.45	146.94	146.12	144.34
D-9	222.38	217.79	214.07	209.54	207.95	205.83	203.99	202.22	200.12	199.00	196.60
D-9.5	318.24	311.65	306.37	299.68	297.61	294.53	291.79	289.35	286.42	284.86	281.32
D-10	365.96	358.35	352.31	351.57	342.25	338.71	335.56	332.73	329.39	327.53	323.45

**"D" CONSTRUCTION - SHAPE C**

Class	4200	4400	4600	5000
D-6	74.59	73.98	73.46	72.74
D-6.5	82.35	81.67	81.10	80.29
D-7	91.93	91.21	90.56	89.67
D-7.5	106.72	105.87	105.13	104.08
D-8	125.93	124.91	124.04	122.80
D-8.5	143.04	141.90	140.91	139.50
D-9	194.86	193.28	191.94	190.00
D-9.5	278.78	276.55	274.62	271.88
D-10	320.54	317.95	315.74	312.58



MODERN TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE D**

Class	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700
D-5	87.92	84.34	81.62	79.10	77.15	75.36	73.89	72.66	71.39	70.37	69.55
D-5.5	96.65	92.81	89.71	86.99	84.87	82.92	81.33	79.90	78.56	77.44	76.50
D-6	111.45	106.89	103.44	100.25	97.81	95.60	93.70	92.09	90.59	89.24	88.23
D-6.5	123.71	118.77	114.85	111.31	108.62	106.12	104.01	102.27	100.57	99.18	97.84
D-7	137.37	131.87	127.52	123.56	120.52	117.79	115.44	113.55	111.60	110.07	108.68
D-7.5	159.41	152.95	147.96	143.39	139.96	136.67	134.03	131.71	129.50	127.71	126.12
D-8	186.42	179.02	173.01	167.72	163.65	159.91	156.76	154.09	151.55	149.39	147.53
D-8.5	213.65	205.18	198.26	192.23	187.55	183.22	179.61	176.54	173.63	171.12	169.05
D-9	291.02	279.46	270.09	261.82	255.53	249.62	244.72	240.57	236.54	233.22	230.29
D-9.5	416.45	400.02	386.53	374.64	365.62	357.18	350.14	344.25	338.46	333.63	329.56
D-10	478.91	459.99	444.46	430.88	420.45	410.71	402.67	395.84	389.22	383.76	378.94

**"D" CONSTRUCTION - SHAPE D**

Class	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	4000
D-5	68.69	67.31	66.24	65.17	64.38	63.57	63.02	62.53	62.01	61.63	60.81
D-5.5	75.52	74.07	72.81	71.74	70.77	69.91	69.26	68.77	68.22	67.78	66.90
D-6	87.12	85.33	83.85	82.65	81.60	80.60	79.84	79.27	78.60	78.17	77.04
D-6.5	96.70	94.75	93.25	91.77	90.60	89.50	88.72	87.98	87.27	86.74	85.56
D-7	107.35	105.17	103.44	101.92	100.68	99.33	98.49	97.64	96.91	96.37	95.05
D-7.5	124.67	122.07	120.03	118.28	116.75	115.35	114.33	113.34	112.49	111.71	110.23
D-8	145.82	142.72	140.43	138.37	136.55	134.87	133.69	132.58	131.53	130.67	129.03
D-8.5	167.04	163.58	160.91	158.48	156.43	154.59	153.21	151.98	150.72	149.73	147.84
D-9	227.56	222.82	219.21	215.96	213.12	210.61	208.76	207.01	205.36	204.03	201.40
D-9.5	325.70	318.86	313.73	308.98	305.01	301.29	298.76	296.23	293.85	291.88	288.22
D-10	374.52	366.68	360.77	359.18	350.72	346.51	343.47	340.64	337.88	335.67	331.36

**"D" CONSTRUCTION - SHAPE D**

Class	4200	4400	4600	5000
D-6	76.34	75.73	75.19	74.45
D-6.5	84.79	84.11	83.54	82.69
D-7	94.20	93.10	92.15	91.23
D-7.5	109.25	108.36	107.62	106.54
D-8	127.87	126.85	125.96	124.71
D-8.5	142.06	140.93	139.93	138.54
D-9	199.59	197.97	196.60	194.63
D-9.5	284.81	282.56	280.60	277.83
D-10	328.38	325.75	323.47	320.19

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**SINGLE-FAMILY RESIDENTIAL  
MODERN - PRE 1990  
D-5 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - POST 1990  
D-5 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - PRE 1990  
D-6 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - POST 1990  
D-6 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - PRE 1990  
D-7 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - POST 1990  
D-7 QUALITY**

**PICTURES**



**SINGLE-FAMILY RESIDENTIAL  
MODERN - PRE 1990  
D-8 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - POST 1990  
D-8 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - PRE 1990  
D-9 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - POST 1990  
D-9 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - PRE 1990  
D-10 QUALITY**

**PICTURES**

**SINGLE-FAMILY RESIDENTIAL  
MODERN - POST 1990  
D-10 QUALITY**

**PICTURES**

## **AH 531.22: MOUNTAIN RESIDENCES**

Mountain residences are buildings designed for single-family occupancy, usually on an intermittent basis. They are designed structurally to withstand snow load requirements of the higher mountain areas of the State of California, and usually have a more rustic finish than comparable single-family residences.

### **MOUNTAIN RESIDENCES AND A-FRAME TYPES**

In this section, two types of residences are considered: Mountain residences type and A-Frame type.

*Mountain residences* are buildings which have an exterior wall approximately eight feet high on all sides.

*A-Frame* residences are buildings in which the sloping roof intersects the floor plane at between one-third and two-thirds of the perimeter of the first floor level of the building.

### **AREA ADJUSTMENTS**

Area adjustments are applied using the same guidelines that are applicable to traditional single-family residences. AH 531.10, the *Introduction* section of this handbook, explains these consideration.

### **SHAPE CLASSIFICATION**

Shape classification is based on the same considerations that are applicable to traditional single-family residences. The guides in AH 531.10 should be used for shape class determination.

### **LOCATION ADJUSTMENTS**

Square foot costs in this section are adjusted to a level that is comparable to the Sacramento area base as of the date in the lower right-hand corner of each page. All square foot costs then should be adjusted by the appropriate location factor as found on the map in AH 531.10, page 25.

### **ADDITIVE COSTS**

Because costs of additive items such as fireplaces, porches, etc., will be quite different in the mountain areas of the state than they are in the Sacramento base area, a set of additive costs that are applicable to mountain residences are included in this section. Additive costs should be modified by any local cost differences that are present in the county.

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-4 QUALITY**

<b>Foundation</b>
Wood piers, light concrete, light concrete block, or light native stone
<b>Floor Structure</b>
2" x 6", 24" o.c.; 1" sub-floor
<b>Walls and Exterior</b>
Framing: 2" x 4", 16" o.c. Siding: Low-cost wood siding or wood shingles Windows: Low-cost wood
<b>Roof</b>
Framing: 2" x 4", 16" o.c.; or 2" x 6", 24" o.c.; with 1" sheathing Cover: Composition shingles or corrugated metal Pitch: Medium
<b>Interior Finish</b>
Home-built with knotty pine or plywood
<b>Bath Detail</b>
One three-fixture bath
<b>Kitchen</b>
Base Cabinet: 6' home-built plywood Wall Cabinet: Home-built plywood
<b>Plumbing</b>
Four low-cost fixtures; water heater
<b>Electrical</b>
Knob and tube or Romex; low-cost fixtures
<b>Special Features</b>
None



**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-5 QUALITY**

<b>Foundation</b>
Concrete block or standard concrete
<b>Floor Structure</b>
4" x 6" girders, 48" o.c.; with 5/4" plywood sub-floor; or 2" tongue and groove sub-floor Alternate: 2" x 6" joists, 16" o.c.; with 1" sub-floor
<b>Walls and Exterior</b>
Framing: 2" x 6", 16" o.c. Siding: Low-cost plywood, lap, or board and batten Alternate: Low-cost wood shingle Fully Insulated: Medium standards Windows: Low-cost wood or metal
<b>Roof</b>
Framing: 2" x 6", 24" o.c.; or 2" x 8", 24" o.c.; with 1" sheathing Alternate: 4" x 8", 48" o.c.; 5/4" plywood; or 2" tongue and groove sheathing Cover: Composition shingles or steel Pitch: Medium to steep
<b>Floor Finish</b>
Linoleum or vinyl asbestos tile
<b>Interior Finish</b>
Low-cost wood paneling or sheetrock and texture
<b>Bath Detail</b>
One three-fixture bath
<b>Kitchen</b>
Base Cabinet: 6' to 8' low-cost plywood veneer, or paint-grade cabinets Wall Cabinet: Low-cost plywood veneer, or paint-grade cabinets
<b>Plumbing</b>
Four low-cost fixtures; water heater
<b>Electrical</b>
Romex wiring; low-cost fixtures
<b>Special Features</b>
None

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-6 QUALITY**

<b>Foundation</b>
Reinforced concrete or concrete block
<b>Floor Structure</b>
4" x 6" girders, 48" o.c.; with 5/4" plywood; or 2" tongue and groove sub-floor; or 2" x 6", 16" o.c.; with 1" sub-floor; insulation to R-11 standards
<b>Walls and Exterior</b>
Framing: 2" x 6", 16" o.c. Siding: Average quality plywood; average quality lap or board and batten siding; or average quality wood shingles Fully Insulated: R-11 standards Windows: Average quality metal or wood; double paned glass
<b>Roof</b>
Framing: 2" x 6", 16" o.c.; 2" x 8", 24" o.c.; with 1" sheathing; or 4" x 8", 48" o.c.; with 2" sheathing Insulation: Minimum of R-19 standards Cover: Wood, composition shingles, or steel Pitch: Medium to steep
<b>Floor Finish</b>
Average quality carpet or linoleum in kitchen and baths
<b>Interior Finish</b>
Sheetrock taped and textured, or average quality plywood veneer
<b>Bath Detail</b>
Two three-fixture baths; average quality fixtures
<b>Kitchen</b>
Base Cabinet: 8' to 12' average quality plywood veneer or painted Wall Cabinet: Plywood veneer or painted Drain Board: 8' to 12' Formica
<b>Plumbing</b>
Seven average fixtures; water heater
<b>Electrical</b>
Romex wiring; average fixtures
<b>Special Features</b>
Drop-in range with hood; one sliding glass door

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-7 QUALITY**

<b>Foundation</b>
Reinforced concrete or concrete block
<b>Floor Structure</b>
4" x 8" girders, 48" o.c.; with a 5/4" plywood; or 2" tongue and groove sub-floor Alternate: 2" x 6" or 2" x 8", 16" o.c.; with 1" sub-floor Fully Insulated: Minimum of R-11 standards
<b>Walls and Exterior</b>
Framing: 2" x 6", 16" o.c. Siding: Average to good plywood, lap, or board and batten Alternate: Good wood shingles Fully Insulated: Minimum of R-11 standards Windows: Average quality wood or metal; double paned glass
<b>Roof</b>
Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Alternate: 2" x 6", 12" o.c.; or 2" x 8", 16" o.c.; with 1" sheathing Insulation: To R-30 standards Cover: Medium shake, steel, or composition shingles Pitch: Medium steep
<b>Floor Finish</b>
Average to good quality carpet; sheet vinyl or good linoleum in kitchen and baths
<b>Interior Finish</b>
Sheetrock and texture; plywood veneer; or good quality knotty pine
<b>Bath Detail</b>
Two three-fixture baths; average ceramic tile or Formica vanities; average ceramic tile or Formica showers
<b>Kitchen</b>
Base Cabinet: 12' to 16' hardwood veneer Wall Cabinet: Hardwood veneer Drain Board: 12' to 16' average ceramic tile
<b>Plumbing</b>
Seven average quality fixtures; water heater
<b>Electrical</b>
Romex wiring; average fixtures
<b>Special Features</b>
One 8' sliding glass door; built-in range and oven, dishwasher, and garbage disposal

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-8 QUALITY**

<b>Foundation</b>
Reinforced concrete or concrete block
<b>Floor Structure</b>
4" x 8" girders, 48" o.c.; with 2" tongue and groove sub-floor Alternate: 2" x 6" or 2" x 8", 16" o.c.; with 1" sub-floor Fully Insulated: Minimum of R-11 standards
<b>Walls and Exterior</b>
Framing: 2" x 6", 16" o.c. Siding: Good plywood, lap, or board and batten Fully Insulated: Minimum of R-11 standards Windows: Good wood or metal; double paned glass
<b>Roof</b>
Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Alternate: 2" x 6", 12" o.c.; or 2" x 8", 16" o.c.; with 1" sheathing Cover: Heavy shake. composition shingles, or steel Pitch: Medium to steep Alternate Roof: Heavy glu-lam beams, 2" x 8", or 2" x 10" purlins, 3" tongue and groove deck, composition cover, flat, or low pitch
<b>Floor Finish</b>
Good carpet or hardwood sheet vinyl in kitchen and baths
<b>Interior Finish</b>
Good quality hardwood veneer paneling
<b>Bath Detail</b>
Two three-fixture baths; one two-fixture bath; good ceramic tile vanities
<b>Kitchen</b>
Base Cabinet: 15' to 18' good hardwood veneer Wall Cabinet: Good hardwood veneer Drain Board: 15' to 18' good quality ceramic tile
<b>Plumbing</b>
Nine good fixtures; one or two water heaters
<b>Electrical</b>
Romex wiring; good fixtures
<b>Special Features</b>
Built-in double oven, range, garbage disposer; dishwasher, hood; large glass area; ornate entry doors, wet bar, microwave oven, pantry

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-9 QUALITY**

<b>Foundation</b>
Reinforced concrete or concrete block
<b>Floor Structure</b>
2" x 8" joists, 16" o.c.; with 2" tongue and groove sub-floor Alternate: 2" x 10" joists, 16" o.c.; with 2" tongue and groove sub-floor
<b>Walls and Exterior</b>
Framing: 2" x 6", 16" o.c. Siding: Good plywood, lap, board and batten, or wood shingle Fully Insulated: Minimum of R-11 standards Windows: Good quality wood or steel sash; double paned glass
<b>Roof</b>
Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Alternate: 2" x 6", 12" o.c.; or 2" x 8", 16" o.c.; with 1" sheathing Insulation: To a minimum of R-30 standards Cover: Heavy shake, composition shingles, or steel Pitch: Medium steep to steep Alternate Roof: Heavy glu-lam beams 2" x 8", or 2" x 10" purlins, 3" tongue and groove deck, medium pitch with heavy shake cover
<b>Floor Finish</b>
Good quality carpet or hardwood; parquet hardwood, slate, ceramic, or garden tile in entry; good vinyl tile in kitchen and utility room
<b>Interior Finish</b>
Good quality hardwood, cherry, or redwood paneling; some wallpaper or grass cloth covering; extensive cabinetry in corners
<b>Bath Detail</b>
Number: 1-1/2 baths for each two bedrooms Floors: Vinyl or good quality linoleum; two lavatories in full baths; full ceramic tile showers; good ceramic tile vanities
<b>Kitchen</b>
Good 20' hardwood veneer base and wall cabinets; fixtures on cooking islands Drain Board: Good quality ceramic tile. granite, Corian, or marble
<b>Plumbing</b>
Ten good fixtures; two water heaters
<b>Electrical</b>
Romex or conduit wiring; very good fixtures; indirect florescent lighting in kitchen and baths; expensive chandelier in dining room
<b>Special Features</b>
Picture and leaded glass windows; best quality built-in double oven, microwave, range, dishwasher, range hood and fan, garbage disposer, compactor; breakfast bar; pantry; wet bar; frosted glass

MOUNTAIN RESIDENCES  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE A**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	115.10	103.29	95.50	89.23	84.63	81.05	77.91	75.60	73.31	71.63	69.99
D-4.5	124.82	112.00	103.47	96.75	91.75	87.80	84.47	81.87	79.58	77.57	75.85
D-5	135.31	121.34	112.23	104.87	99.49	95.17	91.53	88.76	86.23	84.19	82.20
D-5.5	146.71	131.54	121.60	113.75	107.86	103.22	99.22	96.28	93.38	91.21	89.17
D-6	158.99	142.59	131.84	123.20	116.92	111.83	107.53	104.36	101.29	98.92	96.61
D-6.5	173.97	156.07	144.16	134.84	127.89	122.39	117.77	114.20	110.88	108.19	105.70
D-7	190.37	170.74	157.83	147.60	139.96	133.89	128.78	124.95	121.28	118.35	115.66
D-7.5	254.05	227.90	210.61	196.97	186.69	178.71	171.83	166.80	161.79	157.92	154.33
D-8	292.79	262.58	242.68	226.99	215.26	205.97	198.13	192.11	186.56	182.09	177.82
D-8.5	333.57	299.09	276.56	258.61	245.30	234.68	225.76	218.79	212.57	207.49	202.69
D-9	379.39	340.22	314.61	294.11	279.09	266.96	256.86	248.79	241.89	235.93	230.52

**"D" CONSTRUCTION - SHAPE A**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	68.84	67.55	66.54	65.56	63.85	62.28	61.26	60.09	59.49	58.50	57.86
D-4.5	74.59	73.26	72.13	71.14	69.26	67.52	66.49	65.16	64.48	63.40	63.48
D-5	80.87	79.40	78.15	77.06	75.01	73.22	72.11	70.68	69.91	68.72	68.03
D-5.5	87.63	86.02	84.82	83.48	81.28	79.30	78.13	76.60	75.81	74.50	73.77
D-6	95.00	93.30	91.79	90.56	88.18	85.93	84.65	83.08	82.18	80.76	79.93
D-6.5	103.93	102.05	100.50	99.07	96.45	94.08	92.61	90.91	89.85	88.34	87.49
D-7	113.82	111.64	109.95	108.41	105.63	102.97	101.43	99.38	98.31	96.73	95.65
D-7.5	151.79	149.07	146.75	144.65	140.90	137.39	135.24	132.70	131.22	129.04	127.71
D-8	175.08	171.80	169.15	166.74	162.48	158.33	155.95	152.95	151.21	148.76	147.19
D-8.5	198.67	195.71	192.73	161.95	185.08	180.50	177.62	174.24	172.33	169.50	167.74
D-9	227.11	222.53	219.26	216.09	210.50	205.44	202.01	198.24	195.95	192.71	190.85

**"D" CONSTRUCTION - SHAPE B**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	117.22	105.39	97.30	91.16	86.61	82.90	79.73	77.40	75.20	73.40	71.81
D-4.5	127.01	114.26	105.47	98.83	93.89	89.80	86.40	83.93	81.55	79.59	77.88
D-5	137.64	123.83	114.32	107.10	101.71	97.35	93.63	90.94	88.35	86.30	84.38
D-5.5	149.25	134.24	123.92	116.16	110.37	105.52	101.52	98.60	95.81	93.53	91.47
D-6	161.76	145.54	134.42	125.91	119.53	114.39	110.03	106.75	103.86	101.40	99.16
D-6.5	177.04	159.24	147.06	137.74	130.81	125.25	120.45	116.85	113.59	110.89	108.53
D-7	193.74	174.28	160.85	150.74	143.12	136.97	131.73	127.91	124.38	121.33	118.71
D-7.5	258.51	232.50	214.65	201.09	190.99	182.78	175.86	170.74	165.88	161.91	158.33
D-8	297.84	267.98	247.34	231.70	220.16	210.67	202.64	196.81	191.23	186.65	182.60
D-8.5	339.41	305.33	281.80	263.96	250.82	240.03	230.87	224.24	217.90	212.73	208.06
D-9	386.01	346.07	320.37	300.24	285.22	272.94	262.60	255.01	247.93	242.08	236.81

MOUNTAIN RESIDENCES  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE B**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	70.66	69.36	68.41	67.42	65.64	64.07	63.14	61.97	61.26	60.38	59.63
D-4.5	76.59	75.20	74.16	73.11	71.19	69.43	68.41	67.22	66.49	65.42	64.54
D-5	82.97	81.55	80.39	79.27	77.11	75.30	74.16	72.83	72.11	70.89	70.04
D-5.5	90.00	88.35	87.16	85.89	83.67	81.57	80.39	78.98	78.13	76.88	76.00
D-6	97.53	95.84	94.48	93.12	90.69	88.42	87.16	85.58	84.65	83.35	82.31
D-6.5	106.70	104.82	103.33	101.84	99.22	96.75	95.37	93.64	92.61	91.16	90.07
D-7	116.76	114.76	113.09	111.49	108.54	105.90	104.32	102.40	101.43	99.72	98.52
D-7.5	155.73	153.16	150.86	148.66	144.83	141.34	139.22	136.72	135.24	133.04	131.49
D-8	179.60	176.41	173.83	171.40	167.04	162.92	160.51	157.60	155.95	153.41	151.64
D-8.5	204.68	200.89	198.08	195.24	190.24	185.60	182.94	179.54	177.59	174.73	172.82
D-9	232.84	228.45	225.35	222.13	216.52	211.12	208.17	204.13	201.92	198.82	196.78

**"D" CONSTRUCTION - SHAPE C**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	119.07	107.34	99.26	92.99	88.76	84.65	81.57	79.27	77.06	75.30	73.66
D-4.5	129.10	116.38	107.57	100.80	96.28	91.79	88.37	85.88	83.48	81.58	79.82
D-5	139.98	126.13	116.64	109.30	104.34	99.51	95.84	93.12	90.56	88.42	86.43
D-5.5	151.73	136.75	126.48	118.43	113.11	107.89	103.87	100.91	98.19	95.90	93.82
D-6	164.44	148.26	137.11	128.40	122.65	116.96	112.63	109.34	106.35	103.89	101.60
D-6.5	179.98	162.27	149.98	140.56	134.19	127.95	123.27	119.67	116.38	113.75	111.18
D-7	196.85	177.43	164.13	153.70	146.79	140.01	134.84	130.90	127.36	124.51	121.62
D-7.5	262.78	236.82	218.99	205.17	195.86	186.82	179.91	174.67	169.95	166.09	162.30
D-8	302.86	272.91	252.45	236.46	225.76	215.31	207.35	201.45	195.85	191.44	187.09
D-8.5	345.07	310.98	287.68	269.50	257.28	245.30	236.22	229.59	223.03	218.22	213.15
D-9	392.44	353.77	327.32	306.50	292.76	278.90	268.73	261.11	253.71	248.20	242.44

**"D" CONSTRUCTION - SHAPE C**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	72.38	71.14	70.04	69.26	67.51	65.90	64.89	63.78	63.05	62.00	61.48
D-4.5	78.48	77.08	76.00	75.01	73.14	71.35	70.32	69.13	68.33	67.23	66.62
D-5	85.10	83.49	82.31	81.40	79.28	77.40	76.29	74.93	74.06	72.85	72.20
D-5.5	92.22	90.56	89.21	88.37	85.91	83.93	82.64	81.24	80.29	79.02	78.30
D-6	100.04	98.19	96.74	95.65	93.17	90.94	89.55	88.09	87.03	85.59	84.89
D-6.5	109.48	107.42	105.78	104.65	101.97	99.51	97.98	96.39	95.21	93.81	92.90
D-7	119.72	117.48	115.81	114.51	111.53	108.85	107.25	105.43	104.21	102.58	101.58
D-7.5	159.78	156.81	154.55	152.81	148.74	145.23	143.09	140.68	139.00	136.82	135.60
D-8	184.24	180.84	178.17	176.16	171.45	167.50	164.89	162.14	160.24	157.71	156.27
D-8.5	209.88	205.97	202.91	200.80	195.27	190.93	187.89	184.85	184.03	179.68	178.05
D-9	238.80	234.21	230.74	228.41	222.13	217.37	213.67	210.28	207.83	204.40	202.50

MOUNTAIN RESIDENCES (Continued)  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE D**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	121.21	109.30	101.22	94.94	90.30	86.61	83.43	81.14	78.98	77.11	75.52
D-4.5	131.36	118.43	109.70	102.91	97.90	93.89	90.53	87.87	85.57	83.66	81.79
D-5	142.44	128.40	118.93	111.55	106.16	101.71	98.06	95.34	92.75	90.60	88.69
D-5.5	154.36	139.24	128.94	120.95	115.02	110.37	106.29	103.29	100.52	98.27	96.14
D-6	167.24	150.88	139.75	131.13	124.68	119.53	115.32	112.00	109.00	106.51	104.24
D-6.5	183.08	165.19	152.94	143.47	136.41	130.81	126.13	122.46	119.24	116.62	114.00
D-7	200.33	180.67	167.31	156.95	149.30	143.12	137.93	134.07	130.48	127.44	124.74
D-7.5	267.28	241.02	223.28	209.44	199.19	190.99	184.08	178.85	174.06	170.09	166.53
D-8	308.10	277.83	257.28	241.40	229.63	220.16	212.27	206.20	200.74	196.16	191.95
D-8.5	350.95	316.53	293.14	275.01	261.71	250.82	241.88	234.93	228.78	223.50	218.71
D-9	399.14	360.00	333.36	312.79	297.80	285.22	275.17	267.24	260.31	254.45	248.79

**"D" CONSTRUCTION - SHAPE D**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	74.42	73.11	71.88	71.06	69.31	67.59	66.72	65.60	64.95	63.47	63.22
D-4.5	80.67	79.27	77.97	77.05	75.15	73.30	72.37	71.17	70.35	68.84	68.45
D-5	87.40	85.88	84.53	83.43	81.52	79.50	78.43	77.08	76.30	74.59	74.27
D-5.5	94.78	93.12	91.63	90.53	88.34	86.17	84.97	83.66	82.65	80.87	80.56
D-6	102.71	100.91	99.30	98.10	95.73	93.38	92.17	90.57	89.62	87.63	87.32
D-6.5	112.41	110.45	108.63	107.39	104.80	102.27	100.82	99.08	98.06	95.94	95.51
D-7	123.04	120.80	118.93	117.44	114.60	111.91	110.34	108.47	107.34	104.89	104.45
D-7.5	164.09	161.14	158.70	156.72	152.92	149.22	147.25	144.81	143.15	140.04	139.48
D-8	189.20	185.82	182.94	180.55	176.34	171.97	169.74	166.77	164.96	161.41	160.71
D-8.5	215.73	211.73	208.41	205.63	200.99	195.97	193.48	189.97	187.99	183.91	183.02
D-9	245.34	240.87	237.05	233.84	228.61	223.00	220.05	215.97	213.72	209.14	207.99



**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-4 QUALITY**

**A-FRAME**

<b>Foundation</b>	Wood piers; light concrete; light concrete block; light native stone
<b>Floor Structure</b>	2" x 6", 24" o.c.; with 1" sub-floor
<b>Gable Ends</b>	Framing: 2" x 4", 16" o.c. Siding: Low-cost wood siding or wood shingles Windows: Low-cost wood
<b>Roof</b>	Framing: 2" x 4", 16" o.c.; or 2" x 6", 24" o.c.; with 1" sheathing Cover: Composition shingles or corrugated metal Pitch: Steep
<b>Interior Finish</b>	Home-built with knotty pine or plywood
<b>Bath Detail</b>	One three-fixture bath
<b>Kitchen</b>	Base Cabinet: 6' home-built plywood Wall Cabinet: Home-built plywood
<b>Plumbing</b>	Four low-cost fixtures; water heater
<b>Electrical</b>	Knob and tube or Romex; low-cost fixtures
<b>Special Features</b>	None

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-5 QUALITY**

**A-FRAME**

<b>Foundation</b> Concrete block or standard concrete
<b>Floor Structure</b> 4" x 6" girders, 48" o.c.; with 5/4" plywood sub-floor; or 2" tongue and groove sub-floor Alternate: 2" x 6" joists, 16" o.c.; with 1" sub-floor
<b>Gable Ends</b> Framing: 2" x 4", 16" o.c. Siding: Low-cost plywood, lap, or board and batten Windows: Low-cost wood or metal
<b>Roof</b> Framing: 4" x 8", 48" o.c.; with 5/4" plywood; or 2" tongue and groove sheathing Cover: Composition shingles or corrugated iron Pitch: Steep
<b>Floor Finish</b> Linoleum or vinyl asbestos tile
<b>Interior Finish</b> Low-cost wood paneling; sheetrock and texture
<b>Bath Detail</b> One three-fixture bath
<b>Kitchen</b> Base Cabinet: 6' to 8' low-cost plywood veneer or paint-grade cabinets Wall Cabinet: Low-cost plywood veneer or paint-grade cabinets
<b>Plumbing</b> Four low-cost fixtures; water heater
<b>Electrical</b> Romex wiring; low-cost fixtures
<b>Special Features</b> None

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-6 QUALITY**

**A-FRAME**

<b>Foundation</b> Concrete block or standard concrete
<b>Floor Structure</b> 4" x 6" girders, 48" o.c.; with 5/4" plywood; or 2" tongue and groove sub-floor; or 2" x 6," 16" o.c.; with 1" sub-floor
<b>Gable Ends</b> Framing: 2" x 4", 16" o.c. Siding: Average quality plywood; average quality lap, board and batten siding; average quality wood shingles Windows: Average quality metal or wood
<b>Roof</b> Framing: 4" x 8", 48" o.c.; with 2" sheathing Cover: Wood or composition shingles Pitch: Steep
<b>Floor Finish</b> Average quality carpet or linoleum in kitchen and baths
<b>Interior Finish</b> Sheetrock taped and textured; average quality plywood veneer
<b>Bath Detail</b> Two three-fixture baths; average quality fixtures
<b>Kitchen</b> Base Cabinet: 8' to 12' average quality plywood veneer or painted cabinets Wall Cabinet: Plywood veneer or painted Drain Board: 8' to 12' Formica
<b>Plumbing</b> Seven average fixtures; water heater
<b>Electrical</b> Romex wiring; average fixtures
<b>Special Features</b> Drop-in range with hood; one sliding glass door

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-7 QUALITY**

**A-FRAME**

<b>Foundation</b> Concrete block or standard concrete
<b>Floor Structure</b> 4" x 8" girders, 48" o.c.; with a 5/4" plywood; or 2" tongue and groove sub-floor Alternate: 2" x 6" or 2" x 8" 16" o.c.; with 1" sub-floor
<b>Gable Ends</b> Framing: 2" x 4", 16" o.c. Siding: Average to good plywood, lap, or board and batten Alternate: Good wood shingles fully insulated Windows: Average quality wood or metal; double paned glass
<b>Roof</b> Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Cover: Medium wood or aluminum shakes Pitch: Steep
<b>Floor Finish</b> Average to good quality carpet with sheet vinyl or good linoleum in kitchen and baths
<b>Interior Finish</b> Sheetrock and texture, plywood, or good quality knotty pine
<b>Bath Detail</b> Two three-fixture baths
<b>Kitchen</b> Base Cabinet: 12' to 16' hardwood veneer Wall Cabinet: Hardwood veneer Drain Board: 12' to 16' Formica or average ceramic tile
<b>Plumbing</b> Seven average fixtures; water heater
<b>Electrical</b> Romex wiring; average fixtures
<b>Special Features</b> One 8' sliding glass door; built-in range and oven

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-8 QUALITY**

**A-FRAME**

<b>Foundation</b> Concrete block or standard concrete
<b>Floor Structure</b> 4" x 8" girders, 48" o.c.; with 2" tongue and groove sub-floor Alternate: 2" x 6" or 2" x 8", 16" o.c.; with 1" sub-floor
<b>Gable Ends</b> Framing: 2" x 4", 16" o.c. Siding: Good plywood, lap, or board and batten; fully insulated Windows: Good wood or metal; double paned glass
<b>Roof</b> Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Cover: Heavy shakes Pitch: Steep
<b>Floor Finish</b> Good carpet or hardwood sheet vinyl in kitchen and baths
<b>Interior Finish</b> Good quality hardwood veneer paneling
<b>Bath Detail</b> Two three-fixture baths, and one two-fixture bath
<b>Kitchen</b> Base Cabinet: 15' to 18' good hardwood veneer Wall Cabinet: Good hardwood veneer Drain Board: 15' to 18' good Formica or ceramic tile
<b>Plumbing</b> Nine good fixtures; one or two water heaters
<b>Electrical</b> Romex wiring; good fixtures
<b>Special Features</b> Built-in oven, range, garbage disposer, dishwasher, hood; large glass area; ornate entry doors

MOUNTAIN RESIDENCES  
"A"-FRAME" TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE A**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	119.88	108.24	100.27	94.01	89.49	85.91	82.72	80.43	78.25	76.42	74.90
D-4.5	131.45	118.58	109.86	103.10	98.14	94.14	90.69	88.06	85.68	83.80	82.04
D-5	143.93	129.97	120.37	113.06	107.48	103.13	99.42	96.53	93.97	91.80	89.87
D-5.5	157.84	142.46	132.00	123.82	117.82	113.09	108.92	105.80	103.02	100.61	98.53
D-6	173.06	156.16	144.66	135.67	129.20	123.97	119.27	115.94	112.85	110.27	107.94
D-6.5	191.44	172.74	160.05	150.14	142.89	137.11	132.01	128.26	124.87	122.00	119.50
D-7	211.78	191.06	177.01	166.08	158.08	151.70	146.06	141.93	138.10	134.91	132.15
D-7.5	285.66	257.80	238.86	224.05	213.24	204.70	197.09	191.48	186.31	182.05	178.33
D-8	329.79	297.57	275.69	258.64	246.19	236.20	227.46	220.93	215.11	210.06	205.83

**"D" CONSTRUCTION - SHAPE A**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	73.51	72.30	71.31	70.35	68.54	67.08	65.94	64.96	63.95	63.22	62.55
D-4.5	80.59	79.18	78.18	77.14	75.10	73.51	72.32	71.27	70.16	69.28	68.62
D-5	88.35	86.78	85.65	84.55	82.34	80.59	79.20	78.07	76.82	75.99	75.11
D-5.5	96.83	95.13	93.93	92.64	90.26	88.35	86.89	85.57	84.21	83.23	82.35
D-6	106.08	104.21	102.90	101.48	98.95	96.83	95.16	93.77	92.30	91.24	90.31
D-6.5	117.37	115.36	113.90	112.30	109.35	107.11	105.32	103.70	102.18	100.90	99.90
D-7	129.82	127.66	125.96	124.30	121.07	118.50	116.51	114.68	113.05	111.68	110.50
D-7.5	175.26	172.10	169.90	167.50	163.28	159.85	157.21	154.80	152.41	150.65	149.10
D-8	202.19	198.61	196.12	193.41	188.44	184.53	181.37	178.64	175.86	173.86	172.10

**"D" CONSTRUCTION - SHAPE B**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	121.74	110.09	102.12	95.93	91.34	87.76	84.63	82.20	80.18	78.26	76.62
D-4.5	133.48	120.68	111.94	105.13	100.07	96.14	92.68	90.18	87.83	85.78	84.03
D-5	146.23	132.31	122.64	115.20	109.70	105.40	101.67	98.70	96.32	94.00	92.06
D-5.5	160.32	144.92	134.42	126.26	120.26	115.52	111.44	108.24	105.48	103.05	100.90
D-6	175.69	158.85	147.30	138.37	131.80	126.51	122.10	118.62	115.64	112.93	110.58
D-6.5	194.43	175.73	163.04	153.11	145.79	140.04	135.07	131.26	127.96	124.89	122.39
D-7	215.07	194.38	180.26	169.34	161.24	154.92	149.41	149.82	141.60	138.20	135.34
D-7.5	290.18	262.35	243.25	228.55	217.56	208.98	201.61	195.86	190.97	186.50	182.65
D-8	334.86	302.71	280.74	263.66	251.11	241.17	232.67	226.07	220.46	215.20	210.71

**"D" CONSTRUCTION - SHAPE B**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	75.39	74.08	73.14	72.08	70.41	68.94	67.77	66.80	65.91	64.96	64.35
D-4.5	82.65	81.11	80.18	79.07	77.19	75.57	74.32	73.20	72.30	71.27	70.66
D-5	90.55	88.94	87.83	86.62	84.63	82.81	81.44	80.20	79.18	78.07	77.37
D-5.5	99.28	97.50	96.28	94.91	92.77	90.70	89.24	87.95	86.78	85.57	84.72
D-6	108.78	106.85	105.48	104.06	101.67	99.52	97.76	96.38	95.13	93.77	92.91
D-6.5	120.35	118.19	116.75	115.09	112.47	110.08	108.19	106.62	105.23	103.70	102.75
D-7	133.12	130.77	129.15	127.33	124.37	121.72	119.66	117.99	116.38	114.68	113.64
D-7.5	179.69	176.38	174.18	171.80	167.83	164.21	161.45	159.07	157.02	154.80	153.39
D-8	207.35	203.65	201.11	198.26	193.71	189.51	186.36	183.64	181.21	178.64	177.03

MOUNTAIN RESIDENCES  
"A"-FRAME" TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE C**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	123.51	111.92	103.93	97.76	93.15	89.49	86.42	83.90	81.05	79.96	78.40
D-4.5	135.41	122.57	113.91	107.17	102.12	98.14	94.70	92.00	88.81	87.63	85.93
D-5	148.41	134.39	124.82	117.35	111.94	107.48	103.78	100.80	97.43	96.09	94.19
D-5.5	162.61	147.26	136.78	128.70	122.64	117.82	113.83	110.45	106.79	105.31	103.26
D-6	178.18	161.47	149.88	141.06	134.48	129.20	124.66	121.07	117.02	115.36	113.10
D-6.5	197.23	178.54	165.83	156.01	148.71	142.89	137.97	133.93	129.46	127.71	125.15
D-7	218.11	197.57	183.48	172.64	164.55	158.08	152.59	148.13	143.19	141.27	138.53
D-7.5	294.34	266.47	247.61	232.88	221.94	213.24	205.85	199.90	193.13	190.59	186.77
D-8	339.71	307.63	285.64	268.81	256.20	246.19	237.61	230.76	222.96	219.96	215.61

**"D" CONSTRUCTION - SHAPE C**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	77.17	75.54	74.90	73.83	72.24	70.69	69.54	68.62	67.60	66.80	66.10
D-4.5	84.59	82.73	82.04	80.93	79.15	77.44	76.18	75.11	74.11	73.20	72.42
D-5	92.66	90.69	89.87	88.73	86.69	84.78	83.56	82.35	81.29	80.20	79.35
D-5.5	101.65	97.12	98.53	97.22	95.08	93.05	91.55	90.31	88.96	87.95	86.97
D-6	111.31	108.92	107.94	106.49	104.17	101.86	100.36	98.97	97.54	96.38	95.37
D-6.5	123.15	120.57	119.50	117.79	115.28	112.70	111.06	109.48	107.89	106.62	105.48
D-7	136.26	133.33	132.15	130.39	127.45	124.81	122.85	121.14	119.32	117.99	116.75
D-7.5	183.91	179.83	178.33	175.86	172.01	168.30	165.74	163.47	161.08	159.07	157.42
D-8	212.22	207.64	205.83	203.02	198.57	194.20	191.25	188.61	185.89	183.64	181.71

**"D' CONSTRUCTION - SHAPE D**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	125.37	113.64	105.70	99.52	94.86	91.24	88.09	85.68	83.64	81.73	80.47
D-4.5	137.37	124.59	115.81	109.02	104.02	99.97	96.58	93.97	91.62	89.67	88.06
D-5	150.58	136.54	126.86	119.45	113.94	109.60	105.82	103.02	100.52	98.15	96.67
D-5.5	164.97	149.60	139.16	130.87	124.89	120.13	116.04	112.79	110.09	107.66	105.92
D-6	180.87	163.97	152.42	143.52	136.92	131.59	127.16	123.66	120.68	117.97	116.04
D-6.5	200.11	181.42	168.68	158.80	151.49	145.67	140.67	136.85	133.56	130.48	128.43
D-7	221.28	200.71	186.62	175.69	167.51	161.14	155.62	151.40	147.68	144.34	142.03
D-7.5	298.63	270.84	251.78	237.02	225.98	217.30	209.97	204.26	199.23	194.76	191.64
D-8	344.64	312.54	290.46	273.40	260.92	250.80	242.34	235.69	229.97	224.77	221.18

**"D' CONSTRUCTION - SHAPE D**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	78.76	77.68	76.60	75.57	73.99	72.42	71.30	70.32	69.36	68.62	67.90
D-4.5	86.26	85.05	83.92	82.81	81.02	79.35	78.15	77.10	76.02	75.11	74.39
D-5	94.53	93.16	92.05	90.70	88.78	86.97	85.62	84.48	83.29	82.35	81.52
D-5.5	103.60	102.19	100.88	99.52	97.32	95.37	93.84	92.56	91.34	90.31	89.32
D-6	113.54	111.96	110.56	109.02	106.64	104.55	102.80	101.44	100.10	98.97	97.89
D-6.5	125.70	123.92	122.26	120.64	118.08	115.64	113.85	112.19	110.79	109.48	108.32
D-7	138.95	137.09	135.25	133.46	130.54	127.93	125.83	124.13	122.51	121.14	119.83
D-7.5	187.52	184.92	182.48	179.98	176.13	172.51	169.81	167.47	165.30	163.47	161.71
D-8	216.41	213.46	210.65	207.77	203.32	199.19	195.99	193.35	190.74	188.61	186.51

**MOUNTAIN RESIDENCES  
ADDITIVE COSTS**

**WOOD DECKS AND PORCHES**

<u>2" wood deck with steps and railings</u>	<u>Cost Per Square Foot</u>		
1 foot above ground	15.50	-	18.00
4 to 6 feet above ground	18.00	-	23.25
6 to 9 feet above ground	18.50	-	24.50
9 to 12 feet above ground	19.50	-	25.50
12 to 15 feet above ground	20.50	-	26.50
15 to 18 feet above ground	21.00	-	28.00

**FIREPLACES**

<u>Type</u>	<u>Cost</u>		
Metal hood with concrete slab	1,700	-	2,100
Simple concrete block	3,000	-	5,000
Simple block with stone facing	4,000	-	6,000
Simple natural stone	7,000	-	10,000
Brick	5,000	-	up
Wood stove	1,854	-	4,326
Zero clearance	2,472	-	3,708

**FLATWORK**

<u>Type</u>	<u>Cost Per Square Foot</u>		
Asphalt paving	2.62	-	3.93
4" concrete	2.62	-	3.28
6" concrete	3.28	-	5.24

**GARAGES AND CARPORTS**

<u>Type</u>	<u>Cost Per Square Foot</u>		
Average carport, no slab	18.00	-	22.00
Average single garage with slab	38.00	-	45.00
Average double garage with slab	34.00	-	41.00

**HEATING**

<u>Type</u>	<u>Cost</u>		
Wall heaters			
35,000 BTU	803.86		
65,000 BTU	1018.24		
Central heating, perimeter ducts (per square foot)	4.50		
Baseboard hot water (per square foot)	3.22		
Geothermal heat pumps	6120	-	7140



## MOUNTAIN RESIDENCES ADDITIVE COSTS

### HALF-STORY FRACTIONS

#### Mountain Residences

Use suggested fractions as per AH 531.40, *Building Additives*.

#### A-Frame Mountain Residences

Type I simple platform with low-cost floor cover, minimum partitions, and minimum lighting:  
**\$55.00 to \$60.00** per square foot

Type II average quality—average-quality carpet, average amount of partitions finished with sheetrock or plywood veneer, average lighting:  
**\$58.00 to \$64.00** per square foot

Type III good quality—good carpet, decorative rustic partitions and ceiling beams, good lighting:  
**\$83.00 to \$93.00** per square foot

### EXTRA PLUMBING

<u>Type</u>		<u>Cost</u>
Lavatory	1,068	- 1,595
Water Closet	1,305	- 1,595
Tub	1,379	- 1,814
Stall Shower	1,014	- 1,450
Sink	1,089	- 1,595

### SLOPE ADJUSTMENTS

Mountain cabins built on sloping lots will cost more than if they are built on level lots. If the land is a sloping lot, this extra cost should be included in the cost estimate of the building.

The cost of the walls of a building that are not a part of the area that square-foot costs are applied to are estimated using in-place costs. This estimate includes the in-place cost of all materials above a normal foundation (12" to 18" above ground) and the bottom of the next floor structure where square-foot costs have been applied.

The excessive cost of hillside construction called crippling should be included by adding an additional cost for the extra walls, structural members, and high foundation. This extra cost can be estimated by adding the following cost to the highest wall on the steepest side of the house.

<u>Wall Height</u>	<u>Cost Per Lineal Foot</u>
4'	\$44.34
6'	81.43
8'	125.77
10'	162.72

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**MOUNTAIN RESIDENCES  
D-5 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-6 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-6 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-7 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-7 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-8 QUALITY**

**PICTURES**



**MOUNTAIN RESIDENCES  
D-8 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-9 QUALITY**

**PICTURES**

**MOUNTAIN RESIDENCES  
D-9 QUALITY**

**PICTURES**

## **AH 531.30: MULTIPLE-FAMILY RESIDENCES**

Multiple-family residences are residential buildings designed and built for permanent and separate occupancy of two or more family units.

Square foot costs include all costs and components described on page 1 of AH 531.10, the *Introduction* section of this handbook. They include only those built-ins described in the building specifications.

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-4 QUALITY**

<b>Foundation</b> Light concrete
<b>Floor Structure</b> Joists: 2" x 6", 24" o.c.; or 4" concrete
<b>Walls and Exterior</b> 6" reinforced or 8" nonreinforced concrete block; painted exterior Windows: Low-cost steel sash
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: 3 ply built-up 15# felt, mopped Overhang: 16", unsealed Gutters: None
<b>Floor Finish</b> Painted concrete or low-cost asbestos tile
<b>Interior Finish</b> Painted concrete block, wall board, or plywood and paint on partition walls
<b>Interior Detail</b> Trim: One member Douglas Fir, painted; or rubber base Closets: One closet per bedroom; minimum shelving
<b>Bath Detail</b> Floors: Painted concrete or low-cost asbestos tile Walls: Painted concrete block, wall board, or plywood and paint on partition walls Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 4' Douglas Fir, painted Wall Cases: Small area Douglas Fir, painted Drain Board: 4' wood or linoleum
<b>Plumbing</b> Fair quality fixtures
<b>Special Features</b> None
<b>Electrical</b> Knob and tube or Romex wiring; simple fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-5 QUALITY**

<b>Foundation</b>	Reinforced concrete
<b>Floor Structure</b>	Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>	8" reinforced concrete block; painted exterior Windows: Low-cost steel sash
<b>Roof</b>	Framing: Standard wood frame Cover: Asphalt shingles or composition tar and pea gravel Overhang: 12" to 16", unsealed Gutters: Over entrances
<b>Floor Finish</b>	Asphalt tile or low-cost carpet
<b>Interior Finish</b>	Painted concrete block; gypsum board taped, textured, and painted on partitions
<b>Interior Detail</b>	Trim: Douglas Fir, painted, or rubber base Closets: Moderate amount; low-cost doors
<b>Bath Detail</b>	Floors: Asphalt tile Walls: Gypsum board and enamel Shower: Plastic faced hardboard
<b>Kitchen</b>	Base Cabinets: 5' low-cost hardwood veneer Wall Cases: Low-cost hardwood veneer Drain Board: 5' Formica
<b>Plumbing</b>	Galvanized pipe; low-cost fixtures
<b>Special Features</b>	None
<b>Electrical</b>	Romex wiring; low-cost fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-6 QUALITY**

<b>Foundation</b>
Reinforced concrete
<b>Floor Structure</b>
Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>
8" reinforced concrete block or 8" common brick Windows: Average quality steel sash
<b>Roof</b>
Framing: Standard wood frame Cover: Wood shingle, light shake, good composition shingles, or composition with tar and rock Overhang: 16", unsealed Gutters: 4" galvanized and painted at all eaves
<b>Floor Finish</b>
Good quality vinyl asbestos tile or low-cost carpet; average quality linoleum in kitchen and breakfast room
<b>Interior Finish</b>
Gypsum board taped, textured, and painted; colored interior stucco; some wallpaper
<b>Interior Detail</b>
Trim: Douglas Fir, painted Closets: Average amount; low-cost wood or metal doors
<b>Bath Detail</b>
Floors: Linoleum Walls: Gypsum board taped and enameled Shower: Average ceramic tile or plastic coated hardboard with a glass door
<b>Kitchen</b>
Base Cabinet: 6' low-cost hardwood veneer or average pine Wall Cases: Low-cost hardwood veneer or average pine Drain Board: 6' average ceramic tile
<b>Plumbing</b>
Galvanized pipe; average quality fixtures
<b>Special Features</b>
3' ceramic tile or Formica vanity in bath
<b>Electrical</b>
Romex wiring; average fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-7 QUALITY**

<b>Foundation</b>
Reinforced concrete
<b>Floor Structure</b>
Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>
8" reinforced colored detailed concrete block
Windows: Good quality aluminum or average quality steel sash
<b>Roof</b>
Framing: Standard wood frame
Cover: Medium shake or composition and large rock
Overhang: 30", unsealed
Gutters: 6" galvanized and painted at all eaves
<b>Floor Finish</b>
Average quality carpet; average quality sheet vinyl or good quality inlaid linoleum in kitchen and breakfast room
<b>Interior Finish</b>
Gypsum board taped, textured, and painted; plaster with putty coat finish; some wallpaper; average quality hardwood veneer in family room
<b>Interior Detail</b>
Trim: Douglas Fir, painted; some hardwood members
Closets: Average amount with average quality wood doors
<b>Bath Detail</b>
Floors: Sheet vinyl
Walls: Gypsum board or smooth plaster and enamel; average ceramic tile over tub
Shower: Average ceramic tile with glass door
<b>Kitchen</b>
Base Cabinet: 8' average quality hardwood veneer
Wall Cases: Average quality hardwood veneer
Drain Board: 8' ceramic tile or good Formica
<b>Plumbing</b>
Galvanized pipe; good fixtures
<b>Special Features</b>
Average quality garbage disposer, range hood and fan; 4' ceramic tile vanity in bath
<b>Electrical</b>
Romex wiring; average quality fixtures



**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-8 QUALITY**

<b>Foundation</b>	Reinforced concrete
<b>Floor Structure</b>	Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>	8" reinforced split face or slump stone block Windows: Good quality steel sash
<b>Roof</b>	Framing: Standard wood frame Cover: Heavy shake Overhang: 36", unsealed, or 24", sealed Gutters: 8" galvanized and painted at all eaves
<b>Floor Finish</b>	Terrazzo or mission tile in entry; good tongue and groove hardwood or carpet in living, dining, and bedrooms; good sheet vinyl in kitchen and breakfast rooms
<b>Interior Finish</b>	Gypsum board with heavy texture and paint; plaster with putty coat finish; some good wallpaper or vinyl wall covering; some good hardwood veneer paneling
<b>Interior Detail</b>	Trim: Douglas Fir, painted; some hardwood members Closets: Ample space; good wood doors
<b>Bath Detail</b>	Floors: Good ceramic tile Walls: Gypsum board or plaster with vinyl or foil wall cover; good ceramic tile over tub Shower: Good ceramic tile with glass door
<b>Kitchen</b>	Base Cabinet: 10' good hardwood veneer Wall Cases: Ample good hardwood veneer Drain Board: 10' good ceramic tile
<b>Plumbing</b>	Copper tubing; good fixtures
<b>Special Features</b>	8' sliding glass door; good quality built-in oven, range, dishwasher, garbage disposer, and range hood and fan; 4' to 6' ceramic tile vanity in bath
<b>Electrical</b>	Romex type wiring; good quality fixtures

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"C" CONSTRUCTION - 2 or 3 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
C-4	79.51	75.90	73.92	72.42	71.09	69.94	68.99	68.05	67.35	66.19	65.17
C-4.5	86.01	82.19	80.07	78.43	77.03	75.79	74.77	73.70	72.95	71.65	70.62
C-5	93.21	89.04	86.71	84.94	83.41	82.12	80.94	79.86	79.05	77.64	76.47
C-5.5	100.96	96.45	93.94	91.95	90.27	88.92	87.68	86.43	85.59	84.04	82.78
C-6	109.32	104.45	101.79	99.56	97.81	96.24	95.00	93.64	92.71	91.04	89.63
C-6.5	119.57	114.16	111.22	108.89	106.96	105.21	103.78	102.30	101.38	99.53	98.02
C-7	129.94	124.82	121.59	119.05	116.89	115.08	113.50	111.88	110.75	108.76	107.08
C-7.5	149.29	142.58	138.94	136.02	133.52	131.47	129.66	127.90	126.57	124.28	122.49
C-8	170.24	162.65	158.43	155.17	152.31	149.87	147.83	145.85	144.33	141.71	139.62
C-8.5	193.88	185.14	180.37	176.62	173.35	170.68	168.41	165.93	164.26	161.44	159.00

**"C" CONSTRUCTION - 2 or 3 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
C-4	64.42	63.79	63.13	62.74	62.28	61.80	61.55	61.31	61.03	60.86	60.58
C-4.5	69.76	69.10	68.43	67.94	67.47	66.92	66.64	66.39	66.18	65.91	65.66
C-5	75.55	74.81	74.07	73.57	73.10	72.53	72.15	71.86	71.63	71.37	71.09
C-5.5	81.79	80.99	80.29	79.68	79.16	78.50	78.13	77.90	77.58	77.23	77.08
C-6	88.58	87.69	86.91	86.28	85.71	85.00	84.65	84.37	84.02	83.73	83.46
C-6.5	96.89	95.90	95.00	94.36	93.66	93.00	92.58	92.17	91.87	91.41	91.20
C-7	105.89	104.81	103.80	103.07	102.49	101.57	101.11	100.81	100.39	100.02	99.59
C-7.5	120.97	119.76	118.70	117.84	117.04	116.06	115.60	115.14	114.71	114.31	113.89
C-8	137.93	136.62	135.36	134.34	133.45	132.39	131.79	131.33	130.83	130.44	129.86
C-8.5	157.05	155.55	154.07	153.01	151.97	150.77	150.06	149.46	148.92	148.38	147.83

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**2 or 3 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
C-4	3,125	4,603	6,510
C-5	3,819	5,990	7,379
C-6	4,428	6,684	9,289
C-7	4,863	6,338	10,418
C-8	6,510	9,463	11,978

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"C" CONSTRUCTION - 4 to 9 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
C-4	74.90	71.65	69.80	68.35	66.97	65.92	65.05	64.24	63.60	62.49	61.44
C-4.5	81.15	77.59	75.61	74.01	72.58	71.45	70.40	69.62	68.92	67.72	66.60
C-5	87.82	84.03	81.81	80.18	78.67	77.38	76.21	75.35	74.65	73.31	72.14
C-5.5	95.13	91.04	88.59	86.74	85.08	83.77	82.57	81.65	80.81	79.33	78.12
C-6	103.05	98.61	95.98	94.04	92.17	90.77	89.45	88.48	87.54	85.97	84.57
C-6.5	112.67	107.83	104.90	102.80	100.83	99.15	97.73	96.69	95.68	94.00	92.50
C-7	123.13	117.82	114.75	112.31	110.17	108.46	106.87	105.66	104.69	102.77	101.03
C-7.5	140.76	134.60	131.08	128.34	125.85	123.88	122.14	120.72	119.54	117.39	115.48
C-8	160.49	153.52	149.47	146.38	143.57	141.31	139.27	137.72	136.33	133.86	131.65
C-8.5	182.72	174.81	170.22	166.67	163.47	160.84	158.59	156.76	155.24	152.36	150.01

**"C" CONSTRUCTION - 4 to 9 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
C-4	60.72	60.10	59.67	59.18	58.80	58.38	58.04	57.94	57.61	57.38	57.21
C-4.5	65.77	65.10	64.53	64.03	63.67	63.16	62.85	62.74	62.43	62.14	61.99
C-5	71.19	70.53	69.92	69.38	68.96	68.45	68.12	67.94	67.56	67.28	67.23
C-5.5	77.15	76.44	75.75	75.23	74.75	74.19	73.70	73.59	73.20	72.75	72.70
C-6	83.49	82.63	82.04	81.34	80.88	80.31	79.86	79.68	79.27	78.82	78.72
C-6.5	91.31	90.39	89.63	88.96	88.43	87.75	87.28	87.11	86.64	86.23	86.14
C-7	99.74	98.77	98.01	97.23	96.69	95.98	95.40	95.25	94.76	94.28	94.11
C-7.5	114.00	112.95	111.97	111.17	110.45	109.64	109.02	108.86	108.15	107.70	107.53
C-8	130.08	128.76	127.72	126.72	125.96	125.03	124.35	124.11	123.35	122.87	122.57
C-8.5	148.04	146.59	145.43	144.25	143.43	142.37	141.64	141.24	140.48	139.83	139.58

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**4 to 9 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
C-4	2,865	4,247	5,664
C-5	3,473	5,398	6,815
C-6	4,165	6,639	8,232
C-7	4,603	7,523	9,912
C-8	5,990	8,495	11,771

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"C" CONSTRUCTION - 10 OR MORE UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
C-4	70.76	67.72	65.92	64.53	63.41	62.36	61.44	60.72	60.04	59.04	58.07
C-4.5	76.72	73.31	71.45	69.85	68.63	67.49	66.60	65.77	65.08	63.96	62.95
C-5	83.09	79.33	77.38	75.72	74.30	73.13	72.14	71.19	70.41	69.29	68.16
C-5.5	89.97	85.97	83.77	82.04	80.46	79.18	78.12	77.15	76.31	74.99	73.85
C-6	97.39	93.16	90.77	88.85	87.18	85.77	84.57	83.49	82.61	81.24	79.93
C-6.5	106.45	101.85	99.15	97.07	95.26	93.76	92.50	91.31	90.35	88.86	87.41
C-7	116.40	111.27	108.46	106.08	104.18	102.54	101.03	99.74	98.76	97.10	95.48
C-7.5	133.02	127.16	123.88	121.19	119.04	117.11	115.48	114.00	112.89	110.90	109.22
C-8	151.69	145.10	141.31	138.25	135.78	133.59	131.65	130.08	128.72	126.58	124.44
C-8.5	172.74	165.10	160.84	157.44	154.51	152.10	150.01	148.04	146.55	144.04	141.69

**"C" CONSTRUCTION - 10 OR MORE UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
C-4	57.40	56.84	56.28	55.87	55.47	55.17	54.91	54.63	54.46	54.25	54.03
C-4.5	62.17	61.55	60.98	60.52	60.04	59.73	59.41	59.19	58.97	58.78	58.48
C-5	67.30	66.64	66.11	65.48	65.08	64.70	64.40	64.12	63.87	63.59	63.45
C-5.5	72.91	72.15	71.52	70.89	70.41	70.06	69.73	69.40	69.15	68.91	68.64
C-6	78.99	78.13	77.52	76.85	76.31	75.82	75.45	75.28	74.90	74.62	74.30
C-6.5	86.26	85.43	84.71	83.98	83.41	82.92	82.46	82.18	81.90	81.50	81.23
C-7	94.37	93.44	92.58	91.83	91.12	90.60	90.20	89.88	91.80	89.18	88.87
C-7.5	107.82	106.79	105.84	104.97	104.12	103.56	103.07	102.73	102.29	101.84	101.57
C-8	122.93	121.73	120.63	119.68	118.78	118.10	117.51	117.15	116.68	116.18	115.77
C-8.5	139.86	138.57	137.37	136.27	135.28	134.46	133.79	133.31	132.75	132.27	131.82

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**10 OR MORE UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
C-4	2,519	3,905	4,692
C-5	3,040	4,603	6,639
C-6	3,905	5,990	7,523
C-7	4,603	6,944	9,469
C-8	5,295	8,334	10,796

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-4 QUALITY**

<b>Foundation</b> Light concrete
<b>Floor Structure</b> Joints: 2" x 4", 24" o.c.; or 4" concrete
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: None Cover: 1/2" redwood siding painted, or light stucco Windows: Wood casements or double hung, painted
<b>Roof</b> Framing: 2" x 4" rafter, 24" o.c. Cover: 3 ply built-up 15# felt, mopped Overhang: 16", unsealed Gutters: None
<b>Floor Finish</b> 1" x 4" Douglas Fir tongue and groove; print linoleum in kitchen
<b>Interior Finish</b> Two coats of sand plaster on wood or gypsum lath glue size and calcimine
<b>Interior Detail</b> Trim: One member Douglas Fir, painted Closets: One closet per bedroom; minimum shelving
<b>Bath Detail</b> Floors: Print linoleum Walls: Plaster, painted Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 4' Douglas Fir, painted Wall Cases: Small area; Douglas Fir, painted Drain Board: 4' wood or linoleum squares
<b>Plumbing</b> Fair quality fixtures
<b>Special Features</b> None
<b>Electrical</b> Knob and tube or Romex wiring; simple fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-5 QUALITY**

<b>Foundation</b>
Reinforced concrete
<b>Floor Structure</b>
Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>
Framing: Standard wood frame
Sheathing: Line wire and paper
Cover: Light stucco
Windows: Low-cost aluminum, steel, or wood
<b>Roof</b>
Framing: Standard wood frame
Cover: Asphalt shingles or composition tar and pea gravel
Overhang: 12" to 16", unsealed
Gutters: Over entrances
<b>Floor Finish</b>
Asphalt tile
<b>Interior Finish</b>
Gypsum board taped, textured, and painted
<b>Interior Detail</b>
Trim: Douglas Fir, painted
Closets: Moderate amount; low-cost doors
<b>Bath Detail</b>
Floors: Asphalt tile
Walls: Gypsum board and enamel
Shower: Plastic faced hardboard
<b>Kitchen</b>
Base Cabinet: 5' low-cost hardwood veneer
Wall Cases: Low-cost hardwood veneer
Drain Board: 5' Formica
<b>Plumbing</b>
Galvanized pipe; low-cost fixtures
<b>Special Features</b>
None
<b>Electrical</b>
Romex wiring; low-cost fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-6 QUALITY**

<b>Foundation</b>
Reinforced concrete
<b>Floor Structure</b>
Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>
Framing: Standard wood frame
Sheathing: Line wire and paper
Cover: Hardboard siding, wood shingles, low-cost wood siding, or average stucco
Windows: Average quality aluminum, steel, or wood sash
<b>Roof</b>
Framing: Standard wood frame
Cover: Wood shingle, light shake, good composition shingles, or composition with tar and rock
Overhang: 16", unsealed
Gutters: 4" galvanized and painted at all eaves
<b>Floor Finish</b>
Average quality 3/8" square edge hardwood or low-cost carpet; average quality linoleum in kitchen and breakfast room
<b>Interior Finish</b>
Gypsum board taped, textured, and painted; colored interior stucco; some wallpaper
<b>Interior Detail</b>
Trim: Douglas Fir, painted; some low-cost hardwood
Closets: Average amount; low-cost wood or metal doors
<b>Bath Detail</b>
Floors: Linoleum
Walls: Gypsum board taped and enameled
Shower: Average ceramic tile or plastic coated hardboard with a glass door
<b>Kitchen</b>
Base Cabinet: 6' low-cost hardwood veneer or average pine
Wall Cases: Low-cost hardwood veneer or average pine
Drain Board: 6' average ceramic tile
<b>Plumbing</b>
Galvanized pipe; average quality fixtures
<b>Special Features</b>
3' average ceramic tile or Formica vanity in bath
<b>Electrical</b>
Romex wiring; average fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-7 QUALITY**

<b>Foundation</b>
Reinforced concrete
<b>Floor Structure</b>
Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>
Framing: Standard wood frame
Sheathing: Gypsum board
Cover: Good hardboard or average siding and masonry veneer on front wall; good stucco on sides and rear
Windows: Average aluminum; steel or wood
<b>Roof</b>
Framing: Standard wood frame
Cover: Medium shake or composition and large rock
Overhang: 30", unsealed
Gutters: 6" galvanized and painted at all eaves
<b>Floor Finish</b>
Average quality tongue and groove hardwood or carpet; average quality sheet vinyl or good quality inlaid linoleum in kitchen and breakfast room
<b>Interior Finish</b>
Gypsum board taped, textured, and painted; plaster with putty finish; some wallpaper, average quality hardwood veneer in family room
<b>Interior Detail</b>
Trim: Douglas Fir, painted; some hardwood members
Closets: Average amount with average quality wood doors
<b>Bath Detail</b>
Floors: Sheet vinyl or inlaid linoleum
Walls: Gypsum board or smooth plaster and enamel; average ceramic tile over the tub
Shower: Average ceramic tile with glass door
<b>Kitchen</b>
Base Cabinet: 12' average quality hardwood veneer
Wall Cases: Average quality hardwood veneer
Drain Board: 12' average ceramic tile or good Formica
<b>Plumbing</b>
Galvanized pipe; good fixtures
<b>Special Features</b>
Average quality garbage disposer, range hood and fan; 4' ceramic tile vanity in bath
<b>Electrical</b>
Romex wiring; average quality fixtures



**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-8 QUALITY**

<b>Foundation</b>
Reinforced concrete
<b>Floor Structure</b>
Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>
Framing: Standard wood frame Sheathing: Gypsum board or 3/8" plywood Cover: Good wood siding with masonry veneer trim on front wall; good stucco on sides and rear Windows: Good aluminum, steel, or wood
<b>Roof</b>
Framing: Standard wood frame Cover: Heavy shake Overhang: 30", unsealed, or 24", sealed Gutters: 8" galvanized and painted at all eaves
<b>Floor Finish</b>
Good ceramic tile or terrazzo in entry; good quality tongue and groove hardwood or carpet in living, dining, hall, and bedrooms; good quality sheet vinyl or good quality inlaid linoleum in kitchen, breakfast, and utility rooms
<b>Interior Finish</b>
Gypsum board with heavy texture and paint; plaster with putty coat finish; some wallpaper or vinyl wall covering; some good hardwood veneer paneling
<b>Interior Detail</b>
Trim: Douglas Fir, painted; some hardwood members Closets: Ample space; good wood doors; linen closets
<b>Bath Detail</b>
Floors: Good ceramic tile Walls: Gypsum board or plaster with vinyl or foil wall cover; good ceramic tile over tub Shower: Good ceramic tile with glass door
<b>Kitchen</b>
Base Cabinet: 16' good hardwood veneer Wall Cases: Ample good hardwood veneer Drain Board: 16' good ceramic tile
<b>Plumbing</b>
Copper tubing; good fixtures
<b>Special Features</b>
8' sliding glass door; good quality built-in oven, range, dishwasher, garbage disposer, and range hood and fan; 4' to 6' ceramic tile vanity in bath
<b>Electrical</b>
Romex wiring; good quality fixtures

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"D" CONSTRUCTION - 2 OR 3 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
D-4	72.58	69.43	67.67	66.15	64.98	63.91	63.03	62.24	61.64	60.46	59.54
D-4.5	78.64	75.14	73.26	71.61	70.28	69.17	68.32	67.32	66.75	65.52	64.47
D-5	85.15	81.37	79.34	77.53	76.16	74.93	73.91	72.91	72.30	71.02	69.83
D-5.5	92.21	88.12	85.96	83.98	82.47	81.20	80.15	78.98	78.29	76.88	75.67
D-6	99.86	95.40	93.05	90.99	89.35	87.91	86.69	85.60	84.75	83.24	81.93
D-6.5	109.12	104.29	101.76	99.39	97.62	96.10	94.83	93.54	92.65	91.04	89.58
D-7	119.30	114.11	111.22	108.73	106.77	104.99	103.69	102.22	101.28	99.48	97.90
D-7.5	136.35	130.35	127.08	124.16	121.99	120.01	118.47	116.84	115.73	113.65	111.87
D-8	155.48	148.62	144.94	141.64	139.05	136.86	135.14	133.15	132.00	129.64	127.60
D-8.5	176.96	169.23	165.00	161.24	158.37	155.77	153.81	151.56	150.25	147.65	145.24

**"D" CONSTRUCTION - 2 OR 3 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
D-4	58.81	58.26	57.72	57.31	56.91	56.54	56.29	56.00	55.83	55.59	55.46
D-4.5	63.75	63.09	62.56	62.00	61.67	61.28	60.95	60.74	60.42	60.26	60.05
D-5	69.06	68.32	67.68	67.18	66.77	66.37	66.01	65.72	65.45	65.25	65.04
D-5.5	74.78	73.93	73.30	72.73	72.32	71.85	71.56	71.16	70.87	70.69	70.45
D-6	80.95	80.15	79.42	78.76	78.30	77.82	77.43	77.19	76.75	76.52	76.27
D-6.5	88.55	87.51	86.88	86.15	85.61	85.09	84.65	84.35	83.92	83.68	83.38
D-7	96.71	95.75	94.90	94.19	93.61	93.02	92.56	92.13	91.75	91.40	91.18
D-7.5	110.54	109.42	108.42	107.59	106.97	106.30	105.73	105.30	104.84	104.55	104.20
D-8	126.02	124.87	123.60	122.73	121.91	121.21	120.58	120.14	119.56	119.12	118.81
D-8.5	143.60	142.04	140.76	139.72	138.82	138.01	137.30	136.68	136.08	135.63	135.21

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**2 OR 3 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
D-4	3,076	4,406	6,232
D-5	3,739	5,734	7,064
D-6	4,406	6,399	8,892
D-7	4,904	7,729	9,972
D-8	6,232	9,306	11,467

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"D" CONSTRUCTION - 4 TO 9 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
D-4	68.36	65.32	63.64	62.32	61.14	60.17	59.48	58.61	58.02	56.93	56.00
D-4.5	74.01	70.75	69.00	67.47	66.19	65.14	64.40	63.46	62.89	61.69	60.74
D-5	80.17	76.59	74.73	73.07	71.70	70.55	69.64	68.73	68.13	66.82	65.72
D-5.5	86.88	82.97	80.82	79.09	77.68	76.45	75.45	74.35	73.80	72.37	71.16
D-6	94.04	89.90	87.55	85.68	84.02	82.73	81.78	80.53	79.91	78.31	77.19
D-6.5	102.79	98.24	95.75	93.69	91.94	90.47	89.39	88.10	87.35	85.62	84.35
D-7	112.36	107.43	104.65	102.42	100.53	98.92	97.70	96.28	95.40	93.63	92.13
D-7.5	128.36	122.72	119.55	117.08	114.82	113.03	111.69	110.08	109.12	107.05	105.30
D-8	146.47	139.96	136.36	133.48	131.02	128.90	127.33	125.57	124.43	122.09	120.14
D-8.5	166.64	159.28	155.23	151.94	149.06	146.72	144.95	142.93	141.61	138.89	136.68

**"D" CONSTRUCTION - 4 TO 9 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
D-4	55.50	54.92	54.41	53.92	53.61	53.29	53.01	52.81	52.56	52.29	52.21
D-4.5	60.08	59.48	58.92	58.40	58.02	57.70	57.39	57.18	56.87	56.66	56.52
D-5	65.06	64.40	63.80	63.29	62.89	62.47	62.24	61.94	61.64	61.38	61.23
D-5.5	70.50	69.64	69.07	68.49	68.08	67.67	67.32	67.07	66.75	66.44	66.33
D-6	76.35	75.45	74.79	74.27	73.80	73.27	72.90	72.58	72.23	72.06	71.79
D-6.5	83.45	82.54	81.78	81.10	80.68	80.17	79.72	79.37	78.94	78.67	78.51
D-7	91.21	90.25	89.44	88.68	88.12	87.57	87.16	86.73	86.34	86.04	85.81
D-7.5	104.23	103.10	102.22	101.36	100.69	100.04	99.58	99.13	98.66	98.34	98.07
D-8	118.83	117.62	116.52	115.58	114.90	114.13	113.56	113.05	112.49	112.15	111.87
D-8.5	135.32	133.85	132.65	131.59	130.77	129.89	129.24	128.71	128.07	127.61	127.33

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**4 TO 9 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
D-4	2,660	3,987	5,318
D-5	3,324	4,406	6,399
D-6	3,987	6,232	7,729
D-7	4,655	7,064	9,306
D-8	5,569	7,978	11,053

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"D" CONSTRUCTION - 10 OR MORE UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
D-4	64.59	61.47	60.17	58.92	57.72	56.85	56.00	55.37	54.77	53.83	53.03
D-4.5	69.98	66.60	65.14	63.80	62.56	61.56	60.74	59.92	59.34	58.27	57.44
D-5	75.73	72.09	70.55	69.07	67.68	66.73	65.72	64.98	64.36	63.10	62.27
D-5.5	82.05	78.11	76.45	74.79	73.30	72.15	71.16	70.28	69.60	68.40	67.39
D-6	88.84	84.47	82.73	81.03	79.42	78.18	77.19	76.16	75.35	74.01	72.96
D-6.5	97.12	92.39	90.47	88.63	86.88	85.52	84.35	83.26	82.45	80.95	79.76
D-7	106.15	100.98	98.92	96.79	94.90	93.48	92.13	91.00	90.09	88.50	87.17
D-7.5	121.31	115.44	113.03	110.66	108.42	106.80	105.30	103.94	102.94	101.08	99.66
D-8	138.34	131.62	128.90	126.16	123.60	121.76	120.14	118.59	117.33	115.38	113.62
D-8.5	157.56	149.81	146.72	143.65	140.76	138.59	136.68	134.98	133.62	131.29	129.35

**"D" CONSTRUCTION - 10 OR MORE UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
D-4	52.39	51.87	51.42	51.00	50.55	50.25	50.11	49.85	49.66	49.41	49.31
D-4.5	56.77	56.26	55.69	55.22	54.76	54.43	54.23	54.02	53.74	53.55	53.38
D-5	61.47	60.84	60.26	59.76	59.32	59.01	58.71	58.42	58.25	57.94	57.85
D-5.5	66.60	65.87	65.31	64.72	64.15	63.91	63.56	63.35	63.03	62.76	62.62
D-6	72.09	71.38	70.69	70.09	69.53	69.17	68.92	68.57	68.26	68.00	67.74
D-6.5	78.85	78.01	77.28	76.65	75.94	75.62	75.33	74.93	74.64	74.30	74.12
D-7	86.13	85.27	84.47	83.74	83.05	82.70	82.30	81.94	81.52	81.20	81.03
D-7.5	98.38	97.40	96.50	95.75	94.98	94.53	94.09	93.65	93.22	92.88	92.53
D-8	112.20	111.08	110.07	109.12	108.32	107.71	107.32	106.78	106.38	105.85	105.57
D-8.5	127.75	126.48	125.25	124.30	123.31	122.65	122.16	121.55	121.04	120.49	120.23

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**10 OR MORE UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
D-4	2,660	3,739	4,406
D-5	3,076	4,406	4,619
D-6	3,739	5,569	7,064
D-7	4,655	6,647	8,892
D-8	5,318	7,562	9,972

# AH 531.35: MANUFACTURED HOUSING

## INTRODUCTION

A manufactured home is a structure transportable in one or more sections, designed and equipped to contain not more than two-dwelling units and to be used with or without a permanent foundation. A manufactured home does not include a recreational vehicle or commercial coach.

A manufactured home will usually be 8 to 24 feet wide and up to 64 feet long. Manufactured homes assembled from two or three attached sections are known as *double wide* or *triple wide*. Telescoping and/or attached rooms to the side of a manufactured home are known as *tip-out*, *expando*, or *tag-a-long* units. Include all sections in the total square footage computations.

## BASIS OF COST

Costs in this handbook are based upon a variety of indicators, including dealers' sales and manufacturers' list prices.

The base cost factors are listed as retail square foot costs applicable to single- and multi-unit manufactured housing. The accessory and component costs are based upon retail in-place cost to the consumer.

Often times, the sizes used in the manufactured housing industry are overall length which would include the tow bar. The tow bars are normally about three feet long. The costs in this handbook are *net* lengths and **do not include the tow bar**. We suggest the appraiser measure the manufactured home to be certain that actual dimensions are calculated.

The cost factors in this handbook are to be used only in the valuation of manufactured homes that are in excess of 8 feet wide or in excess of 40 feet long, and/or in excess of 320 square feet.

## MANUFACTURED HOME ACCESSORY AND COMPONENT COSTS

The accessory and component cost listing represents retail in-place costs. A price range is indicated to account for variations in quality. Additional accessory and components are included in the basic cost as described in the applicable specifications. Some costs not included in this section may be found in other sections of this manual, e.g., concrete work or yard improvements. Concrete foundation costs are not included in this handbook. Foundations vary in type and cost. They are generally not included in the purchase price and must be added.

## STANDARD CLASSIFICATION SYSTEMS

The square foot cost tables are constructed and arranged to be used with the Assessors' Standard Classification System. This is a system of tabulating and arranging known costs according to

physical variations that cause cost differentials. The manufactured housing classification system is designed to coincide with the single-family residential quality class system. For example, the lowest class of manufactured home is a 4. This class is not currently in production and will not meet current building codes. The class of 5 is given to the lowest priced manufactured home in current production. The quality of all the features is minimum, similar to those found in a minimum quality tract home. The Class 7 manufactured home is the most common and represents the average priced manufactured home usually found in the majority of manufactured housing parks. It represents the equivalent of the average tract home.

Classes 8 and 9 represent increasing quality, with Class 9 being the highest quality made. Very few Class 9 manufactured homes exist and care must be used before assigning this quality class.

The specifications for each quality class make a distinction between classes. This distinction often shows in the *quality* of a feature and not whether the feature is present. The same feature may exist in different classes, but the quality of the feature will help to determine the classification. Conversely, some features may be included in a particular classification, while in another class, the same feature must be treated as an additive.

### LOCATION ADJUSTMENTS

Costs in this handbook are developed from sources in the Sacramento and San Joaquin Valleys, Southern California, and the San Francisco Bay area. Generally, **no adjustment for location is needed in these areas**. Adjustments for freight may be necessary. Transportation and set-up rates for each unit are negotiable between the dealer and purchaser. Local dealers or purchasers must be contacted for the amount charged which is applicable to a particular location. These charges include transportation fees, mileage charges, set-up, tie down, pilot cars, etc. **For manufactured homes, do not use the location map in Section 531.10, page 25.**

Section 5803(b) of the Revenue and Taxation Code states:

The Legislature finds and declares that, because owners of manufactured homes subject to property taxation on rented or leased land do not own the land on which the manufactured home is located and are subject to having the manufactured home removed upon termination of tenancy, 'full cash value' for purposes of subdivision (a) does not include any value attributable to the particular site where the manufactured home is located on rented or leased land which would make the sale price of the manufactured home at that location different from its price at some other location on rented or leased land. In determining the 'full cash value' of such a manufactured home on rented or leased land, the assessor shall take into consideration, among other relevant factors, sales prices listed in recognized value guides for manufactured homes, including, but not limited to, the Kelly Blue Book Manufactured Housing and Mobilehome Guide and the National Automobile Dealer Association's Mobilehome Manufactured Housing Appraisal Guide.

**MANUFACTURED HOUSING**  
**BUILDING SPECIFICATIONS**

**QUALITY CLASS 4**

This class of manufactured home is not in current production; however, older manufactured homes may be found which appear to be less than Class 5. No specifications are given for this class because of the great variation possible. Appraisal judgment must be used to estimate this class based on a comparison with Class 5.

## MANUFACTURED HOUSING BUILDING SPECIFICATIONS

### QUALITY CLASS 5

This is the lowest priced manufactured home in current production. The quality of all the features is minimum, similar to those found in a minimum quality tract home.

<b>Roof</b>	Painted lightweight galvanized steel with minimum pitch; or asphalt shingles
<b>Exterior Walls</b>	Covering is pre-finished aluminum panels with exposed hex-head holding screw fasteners; panels of modified corrugated pattern; panels are not imitation siding or flush type; exterior wall thickness 3" to 4"; lightweight skirting
<b>Trim and Sash</b>	No ornamental trim; minimum window area and sash
<b>Interior</b>	Walls are pre-finished 3/16" fire rated paneling; hardboard or firtex ceiling cover with exposed fasteners and/or stapled holding strips; 7' 6" ceiling heights
<b>Floors</b>	Vinyl; lightweight carpet in living room and master bedroom only
<b>Heating</b>	Forced air furnace; minimum ducting and outlets
<b>Kitchen</b>	10± linear foot Formica counter; minimum quality plywood cabinets; built-in or drop-in range and oven
<b>Baths and Plumbing</b>	One bath; fiberglass tub or shower with curtain; small 4' plastic marble vanity; minimum quality cabinets
<b>Bedrooms</b>	Five to six linear feet of wardrobe; plain plywood sliding doors
<b>Insulation</b>	Fully insulated floors, side walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section



# MANUFACTURED HOUSING BUILDING SPECIFICATIONS

## QUALITY CLASS 6

<b>Roof</b>	One piece fabricated steel; minimum pitch; small overhang in front; or asphalt shingles
<b>Exterior Walls</b>	Covering is pre-finished aluminum siding or flush-type masonite panels with some concealed fasteners; exterior wall thickness is 3" to 4"; skirting is lightweight or masonite hardboard panels
<b>Trim and Sash</b>	No trim; exterior decoration two types of color; coordinated exterior covering; tract house size and quality windows; optional 6' sliding glass door
<b>Interior</b>	Pre-finished fire rated plywood paneling or partial gypsum board; acoustical tile ceiling; 8' eight; drapes in living room, dining room, and bedrooms
<b>Floors</b>	Carpet with 1/2" thick pad in living, dining, and bedrooms; vinyl in other areas
<b>Heating</b>	Forced air furnace; ducting in all rooms; perimeter floor return system; optional air conditioning
<b>Kitchen</b>	12± linear foot Formica counter; average quality plywood cabinets with raised panel doors; built-in range and oven, hood and fan; optional dishwasher
<b>Baths and Plumbing</b>	1 and 3/4 baths; fiberglass shower with glass or plastic door; fiberglass or enameled steel tub; 4 to 5 linear foot plastic marble vanity single basin; average quality cabinets; 30-gallon hot water heater
<b>Bedrooms</b>	8± linear feet wardrobe; pre-finished and grooved plywood doors; mirrored wardrobe door in master bedroom
<b>Insulation</b>	Fully insulated floors, side walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

## MANUFACTURED HOUSING BUILDING SPECIFICATIONS

### QUALITY CLASS 7

This is the average priced manufactured home of the price range usually found in the majority of modern manufactured housing parks.

<b>Roof</b>	One piece white baked enamel metal; asphalt shingles on gable accented roof
<b>Exterior Walls</b>	Pre-finished aluminum (shipload) siding and/or flush-type masonite panels with concealed fasteners; designer coordinated exterior colors; 4" exterior wall thickness; aluminum skirting
<b>Trim and Sash</b>	Little or no trim; two-tone exterior coverings; large, good, house-type sash; some picture windows; optional 6' sliding glass door
<b>Interior</b>	Pre-finished and grooved hardwood, plywood paneling, or gypsum board; 8' acoustical plank-type ceilings; decorator coordinated drapes in all rooms except kitchen and baths; optional cathedral ceilings with decorative beams
<b>Floors</b>	Carpet with 1/2" thick pad in all rooms except baths and kitchen; vinyl in kitchen and baths
<b>Heating</b>	80,000 BTU upflow or downflow forced air furnace; ducting to all rooms; optional air conditioning and fireplace
<b>Kitchen</b>	14± linear foot Formica counter; good quality cabinets; built-in range and oven with a hood and fan; optional dishwasher and pantry
<b>Baths and Plumbing</b>	2 baths; vent fans; fiberglass shower with glass or plastic door; fiberglass or enameled steel tub; 6 to 8 linear foot plastic marble vanity, twin basin master bath; good cabinets; 30 to 40 gallon water heater
<b>Bedrooms</b>	10± linear foot wardrobe; floor to ceiling mirrored sliding doors in master bedroom
<b>Insulation</b>	Fully insulated floors, walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

# MANUFACTURED HOUSING BUILDING SPECIFICATIONS

## QUALITY CLASS 8

This is the highest priced manufactured home of the price range usually found in the majority of modern home parks. This is a luxury type manufactured home. It not only has extensive features, but of more importance, they are of a good quality.

<b>Roof</b>	One piece white baked enamel metal; asphalt shingles on gable accented roof; residential-type front and rear overhangs
<b>Exterior Walls</b>	Pre-finished shiplap aluminum siding and/or flush-type masonite panels with concealed fasteners; designer coordinated exterior colors; exterior walls 4" thick; aluminum skirting
<b>Trim and Sash</b>	Painted aluminum and/or imitation stone (fiberglass) trim; large, good, house-type sash; picture windows; sliding glass door; recessed entry
<b>Interior</b>	Pre-finished and grooved hardwood paneling or gypsum board; careful workmanship throughout; cathedral, decorative beam, and/or acoustical plank-type ceilings; 8' to 8' 6" ceiling height; floor to ceiling drapes over sheer underlays in living room and dining room; raised panel doors; window sills
<b>Floors</b>	Carpet with 1/2" thick pads in all rooms except guest bath and utility room; vinyl floor covering in kitchen, utility, and guest bath
<b>Heating</b>	80,000 to 110,000 BTU upflow or downflow air condition ready furnace with exterior door; ducting to all rooms; optional air conditioning and fireplace
<b>Kitchen</b>	Circular or elaborate kitchen; walk-in pantry; 16± linear foot Formica counter; good quality pre-finished wood cabinets with special hardware; lazy susan corner shelves; built-in range and oven, hood and fan, and dishwasher; dropped luminous ceiling with fluorescent lighting; island work space; microwave oven
<b>Baths and Plumbing</b>	2 baths; vent fans; master bath will have two basins, sunken tub, and stall shower; good quality medicine cabinets and fixtures; 6± linear foot plastic marble vanities; good cabinets; one piece fiberglass shower in guest bath; 30 to 40 gallon water heater; separate commode closet
<b>Bedrooms</b>	9 to 14 linear foot floor to ceiling mirrored sliding wardrobe doors in master bedroom, or walk-in closets
<b>Utility Room</b>	220 volt wiring or gas for dryer and plumbing for washer; built-in utility table; laundry sink
<b>Insulation</b>	Fully insulated floors, walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

# MANUFACTURED HOUSING BUILDING SPECIFICATIONS

## QUALITY CLASS 9

This quality class is the most luxurious manufactured home listed. Care should be used before assigning this class because only a few manufacturers make a manufactured home of this high overall quality.

<b>Roof</b>	Gable accented roof; asphalt shingles; roof pitch of 3" in 12" or more; residential-type front and rear overhangs
<b>Exterior Walls</b>	Pre-finished shiplap aluminum (house type) horizontal siding or 1/2" masonite hardwood siding; decorative stone accent; skirting matches exterior wall material; designer coordinated exterior colors; 6" exterior wall construction
<b>Trim and Sash</b>	Painted aluminum and/or imitation stone (fiberglass) trim; large amount of good house-type sash; picture/bay windows; sliding glass doors; recessed entry; porch lights at exterior doors; dual glazed vinyl windows
<b>Interior</b>	Expensive hardwood paneling or gypsum board; careful workmanship throughout; coffered or cathedral ceiling with beams in living, dining, and family rooms; plant-type acoustical tile ceilings in bedrooms and utility room; 8' to 10' ceiling; wet bar; mirrored walls; built-in buffet cabinet in family and/or living rooms; custom drapes with sheer under-curtains in living room, dining room, and master bedroom; raised panel doors; skylights; window sills
<b>Floors</b>	Tile entry, deluxe carpet with foam padding in bedrooms, dining, living, and family rooms; vinyl floor covering in utility and guest bath. Tile or hardwood flooring in kitchen.
<b>Heating</b>	110,000 BTU upflow air condition ready forced air furnace with exterior access door; ducting to all rooms; optional air conditioning and fireplace; dual zone heating in larger units
<b>Kitchen</b>	18± linear foot of circular Formica or tile counter top; good quality pre-finished wood cabinets; special hardware; lazy susan corner shelves; dropped luminous ceiling; built-in range and oven, hood and fan, microwave over, and dishwasher; broom and storage cabinets; island work space; walk-in pantry; may have tile flooring
<b>Baths and Plumbing</b>	2 to 2 ¾ baths; 8 fixtures; master bath has two basins, garden or sunken tub, one-piece fiberglass shower with glass door; good quality medicine cabinets; 4± linear feet of mirror over 8± linear feet of cultured marble or tile lavatory top; decorative faucets; 40 gallon water heater; separate commode closet
<b>Bedrooms</b>	Sliding mirrored wardrobe doors, or spacious walk-in closets
<b>Utility Room</b>	220 volt wiring or gas for dryer and plumbing for washer; built-in utility table; laundry sink
<b>Insulation</b>	Fiberglass insulation; R-22 to R-33 in ceilings; R-15 to R-22 in floors and walls
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

## MANUFACTURED HOUSING SQUARE-FOOT AREA COST TABLE

	321-	501-	701-	901-	1101-	1301-	1501-	1701-	1901-	2101-	2301-
Class	500	700	900	1100	1300	1500	1700	1900	2100	2300	2500
4	40.85	39.92	38.98	35.28	34.42	33.48	32.60	31.75	30.88	30.01	29.12
4.5	42.93	42.02	41.06	37.21	36.36	35.46	34.58	33.72	32.84	31.97	31.05
5	45.32	44.40	43.45	39.42	38.53	37.66	36.81	35.89	35.04	34.17	33.30
5.5	48.15	47.19	46.28	43.26	41.16	40.29	39.42	38.53	37.66	36.81	35.89
6	51.24	50.31	49.36	46.22	44.02	43.15	42.26	41.37	40.51	39.62	38.75
6.5	55.02	54.05	53.15	49.83	47.52	46.65	45.76	44.89	44.02	43.15	42.26
7	58.80	57.88	56.87	53.42	51.03	50.13	49.28	48.40	47.52	46.65	45.76
7.5	63.09	62.08	61.17	57.48	56.56	55.66	54.76	53.87	52.98	52.05	51.19
8	67.52	66.58	65.65	62.91	62.01	61.11	60.15	59.27	58.30	57.42	56.52
8.5	72.04	71.07	70.15	69.23	68.24	67.30	66.32	65.42	64.45	63.53	62.58
9	76.52	75.57	74.64	73.67	72.72	71.78	70.84	69.88	68.96	68.01	67.07

**NOTE:** The above cost factors are to be used only in the valuation of manufactured homes that are in excess of 8 feet in width or in excess of 40 feet in length, and/or in excess of 320 square feet. To compute square footage, measure the exterior perimeter of the unit(s) at the floor level. **DO NOT INCLUDE THE TOW BAR.**

### FOUNDATION

#### Single Story

For units on permanent foundations	1,000 sq. ft. to 1,800 sq. ft.	\$9,000 to \$17,000
	1,800 sq. ft. to 3,000 sq. ft.	\$17,000 to \$28,000

#### Two Story

Use the footprint of the first story for square foot calculation of foundation.

**MANUFACTURED HOUSING**  
**MANUFACTURED HOUSING ACCESSORY AND COMPONENT COST**

**AIR CONDITIONING**

<u>Type</u>	<u>Cost</u>		
Central Air for Ready Furnace Using Existing Ducts			
2 Ton                      Approximately 800 - 1100 sq. ft.		2,253	
2 1/2 - 3 Ton            Approximately 1100 - 1600 sq. ft.		2,587	
4 - 5 Ton                Approximately 1600 - 2500 sq. ft.	2,840	-	3,342
		<u>Cost per Unit</u>	
Thru-wall Small Unit (1/2 H.P. 6,000 BTU)			787
Thru-wall Large Unit (1 H.P. 1,200 BTU)			1,040
Evaporative Cooler--Roof Mounted	928	-	1,164
Wired Only for Air Conditioning	143	-	298

**BUILT-INS**

<u>Type</u>	<u>Cost Each</u>		
Dishwasher (included in Class 7, 8, or 9)	591	-	732
Garbage Disposal (included in all base cost, deduct if missing)	118	-	732
Built-in Microwave Oven	467	-	933
Trash Compactor	536	-	675
Wet Bar (walk-up--if not included in class)	473	-	563
Wet Bar (walk behind--if not included in class)	1,541	-	1,687
Separate Shower Master Bath	536	-	675
One-half Bath: Toilet, Sink, and Pullman	1,064	-	1,126
Bathroom Sink or Laundry Sink			225
Fireplace (permanent--includes flue)	2,071	-	2,813
Fireplace (free standing--includes flue)	945	-	1,687
Built-in Buffet-Hutch (1 hutch included in Class 8)	715	-	900
Whirlpool Tub in Master Bath	866	-	1,058

**SKIRTING**

<u>Type</u>	<u>Cost Per Linear Foot</u>		
Lightweight Aluminum Panels		6.49	
Lap Aluminum Siding		12.30	
Painted Masonite Panels		12.98	
Flagstone-type Aluminum Panels		12.30	
Concrete Composite Panels	15.88	-	19.64
Vinyl Panels		10.40	
Brick or Stone - Cost per Surface Foot		17.16	

**STORAGE BUILDINGS (Floor Included)**

<u>Type</u>	<u>Cost Per Square Foot</u>
Aluminum Exterior	14.56
Enameled Steel Exterior	11.45
Masonite	22.88

**TIE DOWNS**

<u>Type</u>	<u>Cost</u>
Cork Screw Anchors and Straps	66 - 100 Each

## MANUFACTURED HOUSING

### STEPS AND RAILS

	<u>Cost</u>		
Fiberglass Steps	163	-	249
Rail	35	-	55

### UPGRADED COMPONENTS

<u>Type</u>	<u>Cost</u>		
Upgraded Carpets	992	-	2,481
Upgraded Drapes	992	-	2,111

### PORCHES AND DECKS (No Roofs Included)

<u>Type</u>	<u>Cost Per Square Foot</u>		
Wooden Deck with Outdoor Carpet, Handrails, Skirting, and Steps (manufactured home floor level)	13.47	-	17.94

### CARPORT, PORCH, AND DECK ROOFS

<u>Type</u>	<u>Cost Per Square Foot</u>		
Aluminum Supports and Roof Cover - Free Standing	10.48	-	13.47
Aluminum Supports and Roof Cover - Attached to House	6.66	-	9.48
Wooden Supports and Enameled Steel Cover	11.97	-	14.96

### SCREEN WALLS FOR PORCHES AND DECKS

<u>Type</u>	<u>Cost Per Linear Foot</u>		
Wood Frame with Screen Walls and Door			47.59
Wood or Aluminum Frame with Screen and Glass Walls and Door			82.94

### EXTRA INSULATION PACKAGE

<u>Type</u>	<u>Cost Per Square Foot</u>		
Minimum Fiberglass	0.65	-	0.96
R-11 Floor, R-11 Sidewall, R-22 Ceiling	0.91	-	0.98
R-22 Floor, R-19 Sidewall, R-33 Ceiling	1.04	-	1.43

### ROOF SNOWLOAD CAPABILITY

<u>Pounds Per Square Foot</u>	<u>Cost Per Square Foot</u>		
30 lbs.	0.48	-	0.78
40 lbs.	0.78	-	1.41
50 lbs.	1.41	-	1.87
60 lbs.	1.87	-	2.50
80 lbs.	2.36	-	3.75
100 lbs.	3.13	-	4.31
175 lbs.	3.90	-	4.68

### MISCELLANEOUS

	<u>Cost</u>		
Hot Water Recirculating System (per unit)	489	-	515
Solar Tube Skylight	258	-	309
Foundation Ready	464	-	618

## MANUFACTURED HOUSING

### DEPRECIATION

The depreciation table in this handbook is suggested as a guide to appraisers. The percentage rates are applicable to the replacement cost estimates and no minimum percent good is intended. They are averages based upon an analysis of actual market purchase price information, and revisions to the table may be necessary as more market data become available.

The percentages only apply to manufactured housing in average condition. A separate adjustment should be considered for deferred maintenance (cost to cure). It is strongly suggested that the appraiser carefully evaluate the *effective age* of the manufactured home. This is a critical adjustment that will dramatically affect the cost approach. Investigation has shown that the condition of the manufactured home may have a greater influence on value than age.

#### PERCENT GOOD TABLE

<u>Effective Age (Years)</u>	<u>Percent Good</u>
0	100%
1	100%
2	98%
3	95%
4	91%
5	87%
6	84%
7	80%
8	76%
9	71%
10	66%
11	63%
12	61%
13	59%
14	56%
15	54%
16	52%
17	51%
18	50%
19	50%
20	49%
21	48%
22	47%
23	46%
24	45%
25	44%

No minimum percent good is intended.



**MANUFACTURED HOUSING  
QUALITY CLASS 5  
PICTURES**

**MANUFACTURED HOUSING  
QUALITY CLASS 6**

**PICTURES**

**MANUFACTURED HOUSING  
QUALITY CLASS 7**

**PICTURES**

**MANUFACTURED HOUSING  
QUALITY CLASS 8**

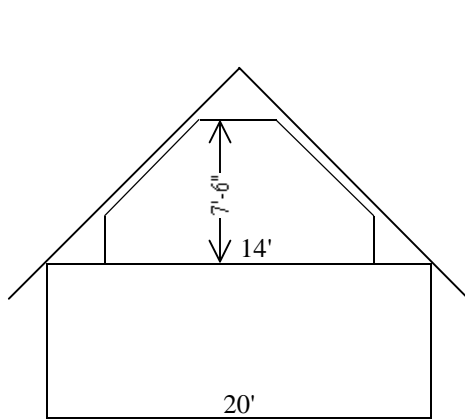
**PICTURES**

**MANUFACTURED HOUSING  
QUALITY CLASS 9**

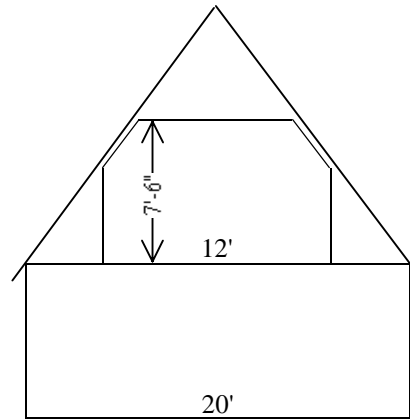
**PICTURES**

# AH 531.40: BUILDING ADDITIVES

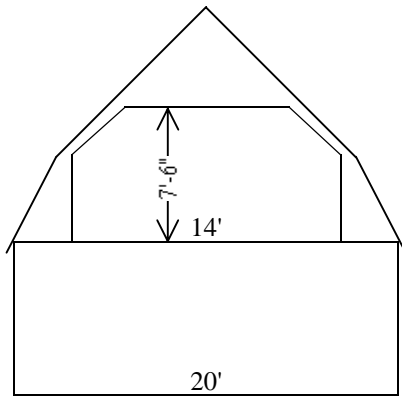
## HALF-STORY AREAS



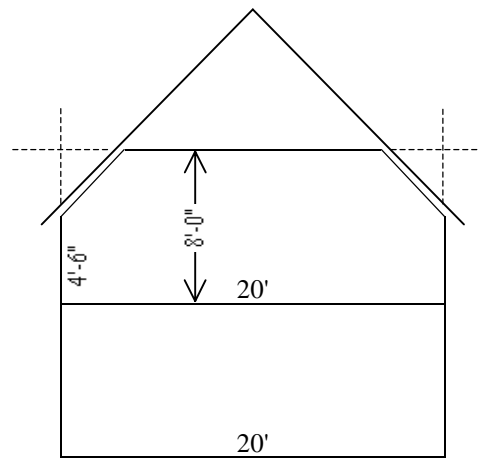
TYPE A



TYPE B



TYPE C



TYPE D

## SUGGESTED FRACTIONS FOR HALF-STORY AREAS

TYPE	SAME FINISH AS MAIN AREA	INFERIOR TO MAIN AREA
A	1/3	1/4
B	1/2	1/3
C	1/2	1/3
D	2/3	1/2

Type "D" includes cost of dormers

## BUILDING ADDITIVES

### COVERED PORCHES AND LEAN-TOS

Costs of covered porches may be estimated by application of a fraction of the main building square-foot cost.		
<u>Suggestions for Fractions</u>	<u>Suggested Fraction</u>	
Low (ground level) floor (usually concrete) without banister, with unceiled shed-type roof	1/4	- 1/3
High (house floor level) floor (concrete or wood) with light banister. Unceiled shed-type roof	1/3	- 1/2
Same ceiled and with roof-like residence (most typical)		1/2
Same partially enclosed with screen or glass	1/2	- 2/3
Enclosed lean-to (sleeping porch, etc.) with lighter foundation, wall structure, interior finish or roof than that of house to which attached	1/2	- 3/4
Roofed-unenclosed-recessed porch, under the same roof as the main building and with the same type and quality foundation (includes shape costs)		3/4
Roofed-enclosed-recessed porch with the same type roof and foundation as the main building (includes shape costs)		4/4
Good arbor or pergola with floor	1/4	- 1/3

### UNCOVERED PORCHES

<u>Concrete Decks</u>	<u>Cost Per Square Foot</u>				
	<u>8" High</u>	<u>1' High</u>	<u>2' High</u>	<u>3' High</u>	<u>4' High</u>
Less than 100 square feet	7.31	9.78	15.91	21.35	30.16
100 to 200 square feet	6.37	8.86	12.79	17.06	22.76
200 to 400 square feet	5.44	6.98	10.87	15.13	19.61
Over 400 square feet	5.28	6.37	9.70	12.79	16.69

### WOOD DECKS AND PORCHES

<u>2" wood deck with steps and railings</u>	<u>Cost Per Square Foot</u>	
1 foot above ground	14.80	- 17.79
4 to 6 feet above ground	17.79	- 23.75
6 to 9 feet above ground	18.63	- 24.96
9 to 12 feet above ground	19.64	- 26.17
12 to 15 feet above ground	20.63	- 27.47
15 to 18 feet above ground	21.63	- 28.72
Plastic decking or fiberglass	17.27	- 27.24

### PORCH ROOFS

<u>Type</u>	<u>Cost Per Square Foot</u>	
Unceiled shed roof with wood shingle cover	7.83	- 9.26
Ceiled shed roof with wood shingle cover	13.17	- 14.96
Unceiled gable roof with wood shingle cover	9.26	- 11.39
Ceiled gable roof with wood shingle cover	14.96	- 16.38
<u>Alternate Covers</u>	<u>Cost Difference Per Square Foot</u>	
Rolled roofing	deduct 0.64	- 0.78
Corrugated aluminum	deduct 0.72	- 0.85
Corrugated iron	deduct 0.72	- 0.85
Asphalt shingles	deduct 0.85	- 0.98
Wood shakes	add 0.98	- 1.49
Clay tile	add 5.62	- 6.78
Slate	add 6.06	- 8.20
Covered porch costs may be estimated by adding a porch cover cost to an uncovered porch cost.		

## BUILDING ADDITIVES

### RESIDENTIAL BASEMENTS

<u>Size</u>	<u>Cost Per Square Foot</u>					
	<u>Unfinished Basements</u>			<u>Finished Basements</u>		
Less than 400 square feet	65.00	-	117.00	100.00	-	134.00
400 - 1,000 square feet	50.00	-	67.50	100.00	-	115.00
Over 1,000 square feet	40.60	-	50.75	55.00	-	75.00

All basement costs assume normal soil conditions, 8' ceiling height, no plumbing, partitions, or windows.

Unfinished basements are based upon reinforced concrete floors and walls, open ceilings and minimum lighting.

Finished basement costs are based upon reinforced concrete floors with vinyl asbestos tile cover, reinforced concrete walls with plywood paneled finish, acoustical tile ceiling and lighting similar to average residences.

Stair access is not included in the basement cost and should always be added.

### BALCONIES

<u>Type</u>	<u>Cost Per Square Foot</u>		
Standard wood frame supported by 4" x 4" posts, 1" wood floor, open on underside, open 2" x 4" railing.	16.43	-	18.00
Standard wood frame supported by 4" x 4" posts, 1" wood floor, sealed on underside, solid stucco or wood siding on railing.	19.57	-	21.13
Standard wood frame supported by steel columns, lightweight concrete floors, sealed on underside, solid stucco or open grillwork railing.	29.73	-	32.87
Add for balcony roofs from porch roof cost on 531.40, page 2.			

### OUTSIDE STAIRWAYS

<u>Type</u>	<u>Cost Per Square Foot</u>		
Standard wood frame, wood steps with open risers, open on underside, open 2" x 4" railing.	14.87	-	16.43
Standard wood frame with solid wood risers, sealed on underside, solid stucco or wood siding on railing.	18.00	-	21.13
Precast concrete steps with open risers, steel frame, pipe rail with ornamental grillwork	39.13	-	43.82



## BUILDING ADDITIVES

### HEATING AND COOLING SYSTEMS

<u>Type</u>	<u>Cost Per Square Foot of Floor</u>					
Central Ducted Air Systems	<u>Perimeter</u>			<u>Overhead</u>		
Single-Family Residences	<u>Outlets</u>			<u>Outlets</u>		
Forced air heating	4.50	-	5.00	3.50	-	4.00
Forced air heating and cooling	5.05	-	6.00	4.00	-	5.11
Gravity heat	2.83	-	3.35			
Multiple-Family Residences						
Forced air heating	2.83	-	3.09	2.58	-	2.83
Forced air heating and cooling	3.61	-	4.38	3.61	-	3.86
Hot and Chilled Water System (Water is heated or cooled in a central installation and circulated to various parts of a building. Building is heated or cooled by blowing air over coils containing hot or cold water.)						
				6.83	-	7.88
<u>Type</u>	<u>Cost Each</u>					
Gas Floor and Wall Furnaces						
Single floor unit				788	-	840
Dual floor unit				1,365	-	1,470
Single wall unit				418	-	627
Dual wall unit				1,147	-	1,249
Thermostat control - add				107	-	168
<u>Electric Baseboard Units</u>						
<u>Wattage</u>	<u>Length</u>			<u>Cost Each</u>		
500	3'			231	-	257
1,000	4'			315	-	341
1,500	6'			341	-	378
2,000	8'			410	-	467
2,500	10'			483	-	525
3,000	12'			578	-	630
Electric Coils Under Bathroom Tile				1,200		1,500
Includes all electrical and wiring costs.						
<u>Geothermal</u>	<u>Cost Per Sq. Ft.</u>					
Ground Source Heat Pump System				8.00	-	11.00

## BUILDING ADDITIVES

### HEATING AND COOLING SYSTEMS (Cont'd.)

#### Electric Wall Heaters

<u>Wattage</u>	<u>Cost Each</u>		
1,000	315	-	368
2,000	368	-	395
3,000	378	-	500
3,500	446	-	552
4,000	525	-	578
4,500	578	-	735
Add for circulating fan	68	-	85
Add for thermostatic control	68	-	85

Cost includes wiring.

#### Evaporative Coolers

<u>Capacity</u>	<u>Cost Each</u>					
	<u>Window Installation</u>			<u>Roof Installation</u>		
2,200 CFM	525	-	578	840	-	946
4,000 CFM	630	-	683	946	-	999
4,500 CFM	735	-	840	1,050	-	1,261
5,500 CFM	788	-	894	1,157	-	1,366

#### Refrigerated Room Coolers

<u>Capacity</u>	<u>Cost Each</u>		
1/3 Ton	600	-	680
1/2 Ton	730	-	780
3/4 Ton	840	-	890
1 Ton	940	-	990
1 1/2 Ton	1,180	-	1,250
2 Ton	1,300	-	1,610

Cost includes wiring and minimum duct work.

### SPRINKLER SYSTEMS

	<u>Per Square Foot</u>	
Single Family Residential	3.00	4.70

### INSULATION

	<u>Per Square Foot</u>	
Minimum Code	0.75	1.40

## BUILDING ADDITIVES

### ELEVATORS, PASSENGER

#### Electric

<u>Capacity</u>	Car and Machinery Cost Per Shaft			
	<u>Base-Six Floors</u>			
	<u>Speed</u>			
	<u>200 F.P.M.</u>	<u>250 F.P.M.</u>	<u>300 F.P.M.</u>	<u>350 F.P.M.</u>
2,000 lbs.	92,720	97,870	103,025	108,170
2,500 lbs.	97,870	103,025	110,230	114,350
3,000 lbs.	105,080	114,355	118,475	125,685
3,500 lbs.	114,350	121,565	128,775	133,925
4,000 lbs.	123,625	131,865	139,075	146,290

Add for deluxe cab \$7,945 per cab.

Add for each stop for doors and door openers, \$8,475 per floor

Baked enamel doors and frame \$2,120 per stop.

Stainless steel doors and frame \$2,325 per stop.

#### Hydraulic

<u>Capacity</u>	Car and Machinery Cost Per Shaft	
	<u>Base-Two Floors</u>	
	<u>Speed</u>	
	<u>100 F.P.M.</u>	<u>200 F.P.M.</u>
2,000 lbs.	36,055	41,210
2,500 lbs.	39,150	46,360
3,000 lbs.	41,210	50,480
3,500 lbs.		53,570
4,000 lbs.		56,660

Add for deluxe car \$7,420 per car.

Add for doors and door openers, \$6,365 per floor

Baked enamel doors and frame \$2,120 per stop.

Stainless steel doors and frame \$2,325 per stop.

### FIRE ESCAPES

	<u>Unit</u>		<u>Cost</u>	
Second story	Each	3,500	-	4,635
Additional floors	Per story	2,060	-	3,090

### BURGLAR ALARMS

	<u>Cost</u>	
Total cost in place	1,500	- 4,000

## BUILDING ADDITIVES

### FIREPLACES/INSTALLED

<u>Type</u>	<u>One Story</u>		<u>Cost Each</u>		<u>Two Story</u>	
Zero Clearance Metal Firebox, natural gas and/or wood burning Low Quality - Typically enclosed by painted or stuccoed wall board 36" width with 12.5' chimney pipe	1,635	-	2,040			
Medium Quality - Typically enclosed in attractive wood paneling, simulated materials, or moderate brickwork, has average wood mantel. 36" width with 15' chimney pipe	2,040	-	2,360	2,245	-	2,450
High Quality - Firebox unit has fire-brick back and floor and glass door. Unit typically enclosed by brick or stone, also has raised brick hearth. 48" width with 15' chimney pipe	2,550	-	4,000	3,060	-	5,500
Add: Insulation, gas line, mantel	850	-	1,000			
Pellet fed fireplace	1,530	-	2,040			
Free Standing Prefabricated Fireplace	1,530	-	2,040			
Masonry:						
5' base, common brick or concrete block, low cost Douglas fir or common brick mantle	4,000	-	4,500	4,500	-	5,000
6' base, common brick, used brick, or natural stone on interior face or with average wood mantle	4,500	-	5,000	5,000	-	8,000
6' base, common brick, face brick with good wood mantle	5,000	-	8,000	8,000	-	9,500
6' base, common brick, used brick, or natural stone on interior face, raised hearth	8,000	-	9,500	9,500	-	12,000
8' base, common brick, used brick, or natural stone on interior face, raised hearth	9,500	-	12,000	14,000	-	14,500
Add 25 to 40 percent to above costs for additional openings using a common chimney.						

## BUILDING ADDITIVES

### STOVES (Franklin or Buck)

<u>Type</u>			
Low Quality			
Steel body with cast iron legs and front	1,104	-	1,629
Medium Quality			
Steel body with cast iron front, doors, and legs, small glass panel in door	1,629	-	2,206
High Quality			
All cast iron with large glass panel in door with slate or rock borders	2,733	-	3,888

### BUILT-IN APPLIANCES

Type	Cost Each		
Combination oven-range with single oven			
Economy	326	-	530
Good	530	-	925
Excellent	857	-	1,600
Surface Cooking Units--Ceramic Cook Top Over Oven			
Economy	454	-	694
Good	694	-	980
Excellent	908	-	1,250
Built-ins			
Single oven with broiler	454	-	510
Single convection oven	959	-	1,553
Double oven	1,489	-	1,834
Range Top			
Economy	388	-	510
Good	510	-	749
Excellent	3,000	-	5,000
Range Top With Grill	561	-	1,091
Range Hoods and Fans	138	-	291
Dishwashers			
Economy	194	-	308
Good	286	-	572
Excellent	530	-	910
Garbage Disposer	163	-	462
Wine Cooler	350	-	500
Instant Hot Water Dispenser	400	-	590
Trash Compactor	300	-	500
Hot Water Recirculator	475	-	500
Microwave Oven Stove Top	460	-	550
Miscellaneous Additives			
Intercom Systems			
Central control-per station	536	-	648
Vacuum Systems			
Power unit and three outlets	1,500	-	3,000
Additional outlets	189	-	242
Crown Molding (Per Lineal Foot)	7	-	12
Two-speaker surround sound	600	-	700
Four-speaker surround sound	1,000	-	1,200
Six-speaker surround sound	1,800	-	2,100

## BUILDING ADDITIVES

### SOLAR HEATING AND COOLING

Solar heating is classified into two types—active and passive. An active solar system is an assembly of collectors, thermal storage devices, and transfer fluids or air to convert solar energy to heat. In an active system, mechanical components such as pumps, fans, and automatic valves are used to supply and distribute heat. The value of newly constructed *active* solar energy systems may be exempt from taxation (see Revenue and Taxation Code section 73).

A passive system is an assembly of natural and architectural components which may include collectors, thermal storage devices, and transfer fluid which converts solar energy into thermal energy in a controlled manner and in which no pumps are used to transfer heat or cold.

Solar systems need auxiliary energy subsystems that function with equipment utilizing energy other than solar, both to supplement the output provided by the solar energy system, and to provide full energy backup during periods when the solar system is not operating.

The cost of a solar system depends on the geographic location, collector efficiency, and other factors. Installation costs vary greatly on a case-by-case basis depending on the design of the home and any structural modification required.

Commencing with the 1981-82 fiscal year, the law was amended defining active solar energy as a system that uses solar devices thermally isolated from living space or other area where energy is used to provide for collection, storage, or distribution of solar energy. Following are the common descriptions used by industry along with the installed cost.

### DOMESTIC HOT WATER SYSTEMS

<b>Thermosyphon System</b> This is a passive hot water system that operates without any moving parts or control. The solar collector panels are located below the hot water storage tank. The heated water naturally rises from the collector panel to the hot water storage tank and cold water in the tank circulates back to the collector to be heated. A thermosyphon system ordinarily requires a backup unit to furnish hot water on cloudy days. Cost does not include back-up unit.	4,300 - 5,500
<b>Breadbox Hot Water Heaters</b> This system consists of one or more tanks in a series painted black to absorb heat from the sun. These units are usually enclosed in a built-in addition on the roof in insulated tanks with exterior glass panels. Most breadbox solar water heaters are low cost, simple, home built systems which are constructed from recycled hot water tanks.	2,273 - 2,525

## BUILDING ADDITIVES

### DOMESTIC HOT WATER SYSTEMS (CONTD.)

<p><b>Active Systems</b></p> <p>Active hot water heating systems come in two types—open and closed. In an open system, water is pumped through the collectors, heated, and returned to the storage tank. In a closed system, water does not circulated through the unit. An antifreeze or glycol solution is heated in collector panels and then circulated through coils either inside or outside the water storage tank. The water or glycol solution is circulated through the system by electric pumps which are controlled by thermostats.</p>	<p style="text-align: right;">4,700   -   6,500</p>
<p><b>Space Heating and Cooling</b></p> <p>Active solar heating, often called indirect space heating, is a solar heating system in which the solar heat is collected outside the building and transferred inside through ducts or piping using fans or pumps. One system uses blowers to circulate solar heated air through rock beds located underneath the building. The heat is then released into the building as needed. The collecting panels are located on the roof and should have one square foot of collecting area for every four square feet in the building. Liquid may also be used as a solar collector. In this system, water or antifreeze is circulated with a pump through collectors into an insulated storage tank. When heat is needed in the building, air is pumped through heated coils and circulated through the building.</p>	<p style="text-align: right;">13,130   -   18,180</p>
<p><b>Passive or Indirect</b></p> <p>Passive or indirect solar systems do not have any mechanical devices requiring auxiliary power. Instead, parts of the building such as glass-covered concrete walls, double-paned windows, skylights, and water-filled tanks are used to collect and store solar heat. Since these items are all part of the building, they may be considered as part of the quality class of the house.</p> <p>Cost per square foot of living area:</p>	<p style="text-align: right;">7.07   -   8.08</p>

### SOLAR HEATED SWIMMING POOLS

<p>In a solar pool heating system, water is heated in solar heating panels and circulated by either the pool filter motor or an auxiliary electric motor from the collectors into the pool. The square footage of the solar panel collectors should be approximately one-half the size of the surface area of the pool.</p> <p>Cost per square foot of pool area:</p>	<p style="text-align: right;">7.58   -   10.61</p>
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## BUILDING ADDITIVES

### DOMESTIC WATER SYSTEMS

Homes that are not served by a public water system usually obtain necessary water from a well. However, wells (including the hole, casing, grouting, and gravel pack) are considered land and appraised as part of the land value. The pump, motor, tank, and distribution piping are considered improvements and are appraised as part of the improvement value.

Many types of pumps are available for domestic wells, but two types are the most common. They are jet pumps and submersible pumps.

### SUBMERSIBLE PUMPS

A submersible pressure system consists of a multi-stage centrifugal pump coupled to an electric motor. The entire unit is submersed below the water level. Water enters a screened section of pipe and is pumped to the surface. This system is by far the most common as it is used in about 60 to 80 percent of all new pump installations.

#### SUBMERSIBLE PUMP COST TABLE

EXCLUDES WELL AND CASING COSTS

##### Depth of Setting

<u>H.P.</u>	<u>40'</u>	<u>60'</u>	<u>80'</u>	<u>100'</u>	<u>120'</u>	<u>140'</u>	<u>160'</u>	<u>180'</u>	<u>200'</u>	<u>220'</u>	<u>260'</u>	<u>300'</u>
1/2	2453	2534	2616	2698	2780	2863	2944					
3/4	2780	2944	3108	3270	3434	3598	3760	3925				
1	3270	3434	3598	5200	3925	4088	4253	4415	4578			
1 1/2	3925	4088	4253	4415	4578	4742	4906	5070	5233	5395		
2	4906	5070	5233	5395	5560	5723	5887	6050	6215	6378		
3	5723	6050	6378	6704	7032	7358	7523	7685	7849	8012	8177	
5	6540	6868	7195	7523	7849	8012	8177	8340	8503	8668	8830	8993

Submersible Pump, Installed at 100'  
Depth Excluding Well and Casing  
Typical Installation

	<u>1/2 H.P.</u>	<u>3/4 H.P.</u>	<u>1 H.P.</u>	<u>1 1/2 H.P.</u>	<u>2 H.P.</u>	<u>3 H.P.</u>	<u>5 H.P.</u>
Total Cost	2,699	3,270	3,760	4,415	5,395	6,704	6,984
Tank Size (Gal)	82	82	120	220	220	315	315



## BUILDING ADDITIVES

### JET PUMPS

Jet Pumps involve a centrifugal pump connected to an ejector consisting of a nozzle and venturi tube. Both the pump and motor are installed at ground level, and the only parts submerged are the pipes and ejector. Maximum pumping depth is 200 feet. Jet pump systems cost between 15 and 20 percent less than submersible systems.

### PRESSURE TANKS

Cost Installed				
<u>Galvanized Tanks</u>				
42 Gal.	16" Diameter x	48" Depth	50" Cir.	331
82 Gal.	20" Diameter x	60" Depth	63" Cir.	441
120 Gal.	24" Diameter x	60" Depth	75" Cir.	551
220 Gal.	30" Diameter x	72" Depth	94" Cir.	1214
315 Gal.	36" Diameter x	72" Depth	113" Cir.	1655
525 Gal.	36" Diameter x	120" Depth	113" Cir.	2206

### WELL COSTS

<u>Drilling Cost Per Linear Foot Including Casing and Gravel Pack</u>						
<u>Casing Diameter</u>	<u>Plastic Casing</u>			<u>Steel Casing</u>		
6"	33.85	-	37.08	37.08	-	40.30
8"				40.30	-	43.51

Price ranges are due largely to the area in which wells are drilled. The harder the soil, the more costly to drill. Domestic wells rarely have casing greater than 8" in diameter.

### SEPTIC TANK COST

<u>House Description</u>	<u>Tank Size</u>	<u>Cost</u>
2 bedroom house	1,000 - 1,250 gallon tank	4,438 - 5,835
3 bedroom house	1,250 - 1,500 gallon tank	5,400 - 6,726
4 bedroom house	1,500 - 2,000 gallon tank	8,500 - 10,000
5 bedroom house	2,000 - 2,400 gallon tank	9,500 - 10,500

The installed cost of septic tanks will vary greatly depending upon soil conditions and type of system. Heavy clay or rocky soil will increase the cost of the system.

## **AH 531.50: RESIDENTIAL GARAGES**

Residential garages, which includes duplexes, townhouses, and condominiums, will usually be classified the same as the main residence. If there is a significant difference between the construction characteristics of the residence and the garage, the garage building specifications may be helpful as a guide to a proper quality class.

Residential garage costs are based upon the cost to build a garage in conjunction with the main residence. They include the costs of all components listed in the garage building specifications.

Attached garages assume 20 linear feet of no wall. Gypsum board or any other interior finish on the wall common to the main residence should be considered as part of the residence.

# RESIDENTIAL GARAGES BUILDING SPECIFICATIONS "D" CONSTRUCTION

## PRE 1990

<b>Foundation</b>	
D-1	Mudsills
D-2	Light concrete
D-3	Light concrete
D-4	Light concrete
D-5	Standard concrete
D-6	Reinforced concrete
D-7	Reinforced concrete
D-8	Reinforced concrete
D-9	Reinforced concrete
D-10	Reinforced concrete
<b>Floor</b>	
D-1	Dirt
D-2	Asphalt
D-3	Asphalt
D-4	Light concrete
D-5	Concrete
D-6	Concrete
D-7	Concrete
D-8	Concrete
D-9	Concrete
D-10	Concrete
<b>Walls</b>	
D-1	1" x 12" vertical board; no sheathing; board and batten exterior
D-2	1" x 12" vertical boards, no sheathing; board and batten exterior
D-3	2" x 4" studs, 24" o.c.; no sheathing; 1/2" wood siding
D-4	2" x 4" studs, 16" o.c.; no sheathing; 1/2" wood siding or light stucco
D-5	2" x 4" studs, 16" o.c.; no sheathing; stucco or low-cost wood siding
D-6	2" x 4" studs, 16" o.c.; no sheathing; stucco or 1" wood siding
D-7	2" x 4" studs, 16" o.c.; 1/2" gypsum board sheathing; good stucco or wood siding
D-8	2" x 4" studs, 16" o.c.; 1" board sheathing; good stucco or wood siding
D-9	2" x 4" studs, 16" o.c.; 1" board sheathing; very good wood siding or masonry veneer
D-10	2" x 4" studs, 16" o.c.; 1" board sheathing; very good wood siding; or masonry veneer
<b>Roof Cover</b>	
D-1	Rolled roofing
D-2	Wood shingles
D-3	Rolled roofing
D-4	Wood shingles
D-5	Wood or composition shingles
D-6	Good wood or composition shingles or light shakes
D-7	Good wood shingles or medium shakes
D-8	Heavy shakes
D-9	Heavy shakes or mission tile
D-10	Mission tile

**RESIDENTIAL GARAGES  
BUILDING SPECIFICATIONS (CONTD.)  
"D" CONSTRUCTION**

**PRE 1990 (Contd.)**

<b>Doors</b>	
D-1	Light hinged
D-2	good hinged or light siding
D-3	Average hinged
D-4	Good hinged or light siding
D-5	Good hinged or light overhead
D-6	Plywood overhead
D-7	Plywood or metal overhead
D-8	Good wood or metal
D-9	Good wood with automatic opener
D-10	Good wood with automatic opener
<b>Lighting</b>	
D-1	None
D-2	None
D-3	None
D-4	One drop cord
D-5	One light with switch
D-6	One light with switch
D-7	One light with switch
D-8	Ample lighting
D-9	Ample lighting
D-10	Ample lighting
<b>Interior Finish</b>	
D-1	Unfinished
D-2	Unfinished
D-3	Unfinished
D-4	Unfinished
D-5	Unfinished
D-6	Unfinished
D-7	Gypsum board on walls
D-8	Gypsum board on all walls
D-9	Gypsum board and paint
D-10	Gypsum board and paint

# RESIDENTIAL GARAGES BUILDING SPECIFICATIONS "D" CONSTRUCTION

## POST 1990

<b>Foundation</b>	
D-5	Reinforced concrete
D-6	Reinforced concrete
D-7	Reinforced concrete
D-8	Reinforced concrete
D-9	Reinforced concrete
D-10	Reinforced concrete
<b>Floor</b>	
D-5	Reinforced concrete
D-6	Reinforced concrete
D-7	Reinforced concrete
D-8	Reinforced concrete
D-9	Reinforced concrete
D-10	Reinforced concrete
<b>Walls and Sheathing</b>	
D-5	Standard wood or steel frame; line wire and paper; plywood or particle board
D-6	Standard wood or steel frame; line wire and paper; plywood or particle board
D-7	Standard wood or steel frame; line wire and paper; plywood or particle board
D-8	Standard wood or steel frame; line wire and paper; plywood or particle board
D-9	Standard wood or steel frame; gypsum board or plywood; fully insulated
D-10	Standard wood or steel frame; gypsum board or plywood; fully insulated
<b>Exterior Cover</b>	
D-5	Light stucco; lap or wood siding
D-6	Wood shingles or low-cost wood siding; masonry trim on wall; average stucco
D-7	Average stucco or wood siding; brick or stone trim
D-8	Good wood siding; masonry or stucco
D-9	Good stucco or wood siding; extensive masonry
D-10	Decorative stucco or heavy wood siding; extensive of full brick veneer
<b>Windows</b>	
D-5	Low-cost wood or metal
D-6	Average quality aluminum or wood
D-7	Vinyl framed wood or aluminum
D-8	Vinyl framed wood or aluminum
D-9	Good quality vinyl framed wood or aluminum
D-10	Excellent quality vinyl framed wood or aluminum
<b>Doors</b>	
D-5	Plywood or metal overhead
D-6	Plywood or metal overhead
D-7	Metal overhead with windows and design
D-8	Metal overhead with windows and design
D-9	High quality metal overhead with glass trim and design embossed
D-10	Excellent quality metal overhead with glass trim and design embossed

**RESIDENTIAL GARAGES  
BUILDING SPECIFICATIONS (CONTD.)  
"D" CONSTRUCTION**

**POST 1990 (Contd.)**

<b>Roof Cover</b>	
D-5	Standard wood or steel frame; composition shingle; concrete shake; 0" to 12" overhang, unsealed
D-6	Standard wood or steel frame; wood shingle; light wood shake; good composition shingle; concrete shake or tile; 0" to 18" overhang, unsealed
D-7	Standard wood or steel frame; medium wood shake; concrete shake or tile; 0" to 24" overhang, unsealed
D-8	Standard wood or steel frame; heavy wood shake; concrete shake or tile; 0" to 24" overhang, sealed or unsealed
D-9	Standard wood or steel frame; heavy wood shake; concrete shake or tile; adobe tile; 0" to 36" overhang, unsealed, sealed, or boxed
D-10	Standard wood or steel frame; heavy wood shake; adobe tile; copper; slate; 0" to 36" overhang, unsealed, sealed, or boxed
<b>Lighting</b>	
D-5	One light with switch
D-6	One light with switch
D-7	One light with switch
D-8	One light with switch
D-9	Ample lighting
D-10	Ample lighting
<b>Interior Finish</b>	
D-5	Unfinished
D-6	Gypsum board
D-7	Gypsum board, painted
D-8	Gypsum board, painted
D-9	Fully finished with some cabinets and shelving
D-10	Fully finished with some cabinets and shelving

**RESIDENTIAL GARAGES**  
**ATTACHED**  
**SQUARE FOOT AREA COST TABLES**

**"D" CONSTRUCTION**

Class	220	260	280	320	360	400	440	480	540	600	720
D-1	11.05	10.64	10.50	10.18	9.98	9.82	9.75	9.51	9.48	9.32	9.11
D-1.5	15.89	15.23	15.05	14.52	14.43	13.95	13.90	13.72	13.56	13.29	13.13
D-2	20.59	19.86	19.55	18.95	18.58	18.31	18.06	17.88	17.55	17.43	17.07
D-3	22.92	22.06	21.61	21.09	20.54	20.13	19.86	19.55	19.26	18.95	18.47
D-3.5	25.30	24.29	23.74	23.05	22.64	22.15	21.88	21.49	21.16	20.80	20.50
D-4	27.53	26.31	25.88	25.14	24.53	24.13	23.69	23.44	23.05	22.85	22.32
D-4.5	29.58	28.12	27.66	26.82	26.13	25.79	25.30	24.97	24.53	24.29	23.69
D-5	31.57	29.93	29.46	28.50	27.68	27.19	26.82	26.42	26.09	25.79	25.14
D-5.5	36.04	34.03	33.27	31.98	31.10	30.49	29.88	29.46	29.03	28.49	27.75
D-6	40.60	38.13	37.23	35.81	34.62	33.79	33.15	32.48	31.86	31.25	30.53
D-6.5	43.36	41.03	40.11	38.79	37.77	36.96	36.14	35.63	34.95	34.40	33.58
D-7	45.97	43.85	43.07	41.89	40.91	40.11	39.47	38.84	38.25	37.66	36.85
D-7.5	51.93	49.83	48.96	47.48	46.22	45.37	44.47	43.95	43.14	42.57	41.62
D-8	61.31	58.64	57.58	55.75	54.54	53.39	52.45	51.61	50.76	50.05	48.93
D-8.5	73.75	69.09	68.03	67.13	65.48	63.95	62.93	62.05	60.81	60.00	58.59
D-9	91.17	87.07	85.43	82.64	80.62	78.94	77.66	76.45	75.01	74.07	72.30
D-9.5	121.30	115.68	113.36	109.63	106.92	104.47	102.59	100.98	99.31	97.61	95.29
D-10	139.84	133.24	130.42	126.32	122.80	120.01	117.88	115.90	113.71	111.96	109.15

**DETACHED**  
**SQUARE FOOT AREA COST TABLES**

**"D" CONSTRUCTION**

Class	220	260	280	320	360	400	440	480	540	600	720
D-1	12.17	11.36	11.04	10.63	10.14	9.87	9.60	9.43	9.15	8.98	8.72
D-1.5	17.10	16.00	15.56	14.98	14.40	13.98	13.69	13.27	13.04	12.78	12.42
D-2	21.91	20.68	20.18	19.32	18.61	18.17	17.69	17.33	16.94	16.58	16.00
D-3	25.37	23.70	23.06	21.88	21.00	20.36	19.83	19.34	18.85	18.41	17.69
D-3.5	27.68	25.85	25.20	23.90	23.07	22.29	21.78	21.24	20.65	20.18	19.50
D-4	30.15	28.23	27.43	26.12	25.04	24.32	23.71	23.09	22.48	21.91	21.13
D-4.5	31.94	29.80	29.05	27.60	26.77	25.77	25.20	24.54	23.84	23.33	22.66
D-5	34.18	31.56	30.67	29.11	28.00	27.20	26.52	26.07	25.37	24.99	24.18
D-5.5	39.24	36.23	34.98	33.17	31.82	30.67	29.81	29.10	28.23	27.51	26.38
D-6	46.63	42.68	41.17	38.81	37.04	35.80	34.65	33.79	32.60	31.88	30.64
D-6.5	49.35	45.93	44.59	42.00	40.81	39.55	38.40	37.52	36.39	35.57	34.20
D-7	53.41	49.74	48.24	45.87	44.09	42.68	41.48	40.50	39.28	38.34	36.90
D-7.5	60.56	56.36	54.66	52.04	50.01	48.32	47.02	45.89	44.45	43.39	41.70
D-8	68.36	63.48	61.63	58.60	56.24	54.46	52.80	51.54	50.00	48.78	46.97
D-8.5	82.58	76.69	74.37	70.63	67.79	65.50	63.61	62.01	60.18	58.68	56.38
D-9	102.14	94.96	92.15	87.47	83.86	80.98	78.51	76.73	74.36	72.50	69.48
D-9.5	137.02	127.05	123.00	116.70	111.80	107.71	104.49	101.96	98.68	95.83	92.07
D-10	159.06	147.00	142.62	135.02	129.12	124.59	120.64	117.36	113.53	110.35	105.78

**RESIDENTIAL GARAGES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

<b>Foundation</b>	
C-4	Light concrete
C-5	Standard concrete
C-6	Reinforced concrete
C-7	Reinforced concrete
C-8	Reinforced concrete
<b>Floor</b>	
C-4	Light concrete
C-5	Concrete
C-6	Concrete
C-7	Concrete
C-8	Concrete
<b>Walls</b>	
C-4	6" reinforced or 8" nonreinforced concrete block; painted exterior
C-5	8" reinforced concrete block; painted exterior
C-6	8" reinforced colored concrete block
C-7	8" reinforced colored detailed block
C-8	8" reinforced colored detailed block
<b>Roof Cover</b>	
C-4	Wood shingles
C-5	Wood or composition shingle
C-6	Good wood or composition shingles; light shakes
C-7	Good wood shingles; medium shakes
C-8	Heavy shakes
<b>Doors</b>	
C-4	Good hinged or light siding
C-5	Good hinged or light overhead
C-6	Plywood overhead
C-7	Plywood or metal overhead
C-8	Good wood or metal
<b>Lighting</b>	
C-4	One drop cord
C-5	One light with switch
C-6	One light with switch
C-7	One light with switch
C-8	Ample lighting
<b>Interior Finish</b>	
C-4	Unfinished
C-5	Unfinished
C-6	Unfinished
C-7	Gypsum board on walls
C-8	Gypsum board on all walls



**RESIDENTIAL GARAGES**  
**ATTACHED**  
**SQUARE FOOT COST TABLES**

**"C" CONSTRUCTION**

<b>Class</b>	<b>220</b>	<b>260</b>	<b>280</b>	<b>320</b>	<b>360</b>	<b>400</b>	<b>440</b>	<b>480</b>	<b>540</b>	<b>600</b>	<b>720</b>
C-4	47.77	45.13	44.05	42.38	41.22	40.07	39.17	38.57	37.61	36.90	35.94
C-4.5	49.86	47.09	46.16	44.41	43.09	42.01	41.22	40.48	39.59	38.84	37.72
C-5	52.00	49.30	48.11	46.38	45.08	43.99	43.09	42.36	41.41	40.64	39.59
C-5.5	54.78	51.91	50.71	48.94	47.51	46.32	45.36	44.59	43.67	42.85	41.71
C-6	57.65	54.70	53.51	51.56	50.08	48.94	47.96	47.06	46.16	45.35	44.05
C-6.5	61.66	58.39	57.17	55.25	53.52	52.40	51.28	50.44	49.43	48.49	47.22
C-7	65.00	61.51	60.29	58.12	56.46	55.22	54.00	53.06	52.02	51.07	49.85
C-7.5	72.14	68.51	67.02	64.72	62.78	61.40	60.07	59.03	57.85	56.88	55.43
C-8	83.83	79.54	77.80	74.93	72.96	71.11	69.74	68.63	67.15	66.01	64.32

**DETACHED**  
**SQUARE FOOT COST TABLES**

**"C" CONSTRUCTION**

<b>Class</b>	<b>220</b>	<b>260</b>	<b>280</b>	<b>320</b>	<b>360</b>	<b>400</b>	<b>440</b>	<b>480</b>	<b>540</b>	<b>600</b>	<b>720</b>
C-4	56.15	51.65	50.00	46.98	44.71	42.92	41.42	40.28	38.77	37.55	35.88
C-4.5	58.40	53.82	51.94	50.34	46.60	44.83	43.36	42.16	40.63	39.41	37.48
C-5	60.82	56.00	54.06	51.02	48.61	46.67	45.22	43.82	42.50	41.09	39.24
C-5.5	63.84	58.88	56.93	53.58	51.18	49.18	47.56	46.26	44.58	43.24	41.34
C-6	70.37	64.81	62.72	59.26	56.52	54.31	52.54	50.99	49.21	47.35	45.67
C-6.5	74.92	69.17	66.89	63.12	60.30	57.98	56.16	54.46	52.66	51.18	48.76
C-7	79.03	72.92	70.51	66.56	63.52	61.13	59.10	57.49	55.48	53.80	51.61
C-7.5	88.03	81.12	78.43	74.11	70.76	67.94	65.70	63.97	61.74	59.98	57.34
C-8	97.28	89.62	86.80	82.03	78.25	75.25	72.85	70.78	68.45	66.37	63.46

## RESIDENTIAL GARAGES

### MULTIPLE-FAMILY RESIDENTIAL GARAGES

Built at ground level and under a multiple-family unit.

#### SQUARE-FOOT COST TABLE

Area	400	800	1,200	2,000	3,000	5,000	10,000	20,000
Cost	29.10	25.94	23.30	20.57	19.21	18.37	17.93	16.99

These costs include the following components.

1. A reinforced concrete floor in all areas.
2. Exterior walls, on one long side and two short sides, made up of a standard wood frame with stucco on both sides.
3. Steel support columns for the floor above.
4. A stucco ceiling in all areas.
5. The difference between the cost of a standard wood frame floor structure at the second floor level and one at the ground level.
6. An average quality light fixture per each 600 square feet.

For multiple-family residential garages built at ground level under a multi-family residence and including all components listed above except exterior walls, use \$15.00 per square foot.

### MULTIPLE-FAMILY RESIDENTIAL GARAGES BUILT AS SEPARATE BUILDINGS

#### SQUARE-FOOT COST TABLE

Area	400	800	1,200	2,000	3,000	5,000	10,000	20,000
Cost	33.54	29.96	27.32	26.88	25.94	23.74	22.80	22.38

These costs include the following components:

1. Foundations.
2. A reinforced concrete floor in all areas.
3. Exterior walls, on one long side and two short sides made up of a standard wood frame with stucco on both sides.
4. Steel support columns supporting the roof.
5. An unceiled standard wood frame roof structure with composition tar and gravel, wood shingle, or light shake cover.
6. An average quality light fixture per each 600 square feet.

**Common wall: deduct \$3.50 per square foot of wall area**

### CARPORTS

Wood or steel posts, asphalt floors, built-up wood frame, or corrugated metal roof \$13.00 to \$15.00 per square foot.

## RESIDENTIAL GARAGES

### BASEMENT GARAGES

One level, five feet below grade, directly beneath 2- to 4-story apartments with perimeter walls in vertical alignment.

SQUARE-FOOT AREA COST TABLE

Type	5,000	7,500	10,000	15,000	20,000	30,000	40,000	60,000
Reinforced concrete exterior walls, reinforced concrete columns and flat concrete roof slab	44.26	42.02	39.22	38.08	36.98	36.53	36.00	35.58
Concrete block exterior walls, reinforced concrete columns and flat concrete roof slab	43.85	41.05	38.35	37.42	36.53	36.10	35.58	34.70
Concrete block exterior walls, steel posts and beams, light concrete/metal roof fireproofed with spray plaster	41.23	37.63	35.86	34.90	34.06	33.12	32.28	31.75
Concrete block walls, wood posts and beams, light concrete/metal roof fireproofed with spray plaster	36.71	34.90	32.69	30.46	29.53	29.10	28.68	28.18
Add for <u>each</u> security door	2.75	2.00	1.70	1.20	1.05	0.85	0.75	0.65

Basement garage costs include the following:

1. 5' excavation
2. Full wall enclosure
3. Storage facilities
4. Minimum lighting
5. Concrete floors
6. Two-car bays

Access stairways and driveway ramps outside the perimeter walls should be considered to be a part of the garage area.

# AH 531.51: YARD IMPROVEMENTS

## SWIMMING POOLS

Swimming pool costs are based on the total surface square footage of the basic pool area. To this total, additives should be added that differ for each pool. The basic square-foot costs include permits, excavation, rough plumbing, rough electrical, steel reinforcing, gunite, plaster, filter, tile work, decking, finish work, profit, and overhead.

Extra costs to be added to the basic pool include costs for the heater, whirlpool spa, pool sweep, ladders, lights, steps, diving board, slide, and swim outs. Many times extra decking, long runs for electrical, water, and gas lines are costly. Soil conditions, right-of-way access, fence, and other obstacle removal and replacement increase total pool costs.

Types of finish decorations such as rock, brick, flagstone trim, cantilevered decking, fancy or special tile, waterfalls, etc., add costs to the total pool costs. Care must be used to separate landscaping costs that are sometimes included in the total pool contract.

The typical pool includes filter, light, one set of steps, and three feet of perimeter decking. It is usually three feet to eight and one-half feet deep and will average 440 surface feet in size.

Pools can be classified into three categories: concrete, fiberglass, or in-ground liner. Concrete pools are usually built of gunite, wet pack, or poured and are the most common of the typical residential pools in use today.

Because of savings in cost, and rapid installation time, fiberglass pools are less expensive than concrete. A key cost in fiberglass pools is the distance between the manufacturer and consumer. Delivery charges can add between \$16.50 and \$20.50 per mile to the cost of the pool. In-ground liner pools are usually of concrete block or redwood base covered with a plastic liner, which in turn is sealed to the base.

## SWIMMING POOLS

	Cost Per Square Foot		
Concrete Pools	50.00	-	90.00
Fiberglass Pools	25.00	-	45.00
In-ground Liner	20.00	-	33.00

A typical 300 square foot concrete pool will cost between **\$65.00 and \$75.00** per square foot.

Swim spas are narrow lap pools with powerful jets that cause a current. The swimmer swims in place against the current—**\$35,000 to \$40,000**.

## YARD IMPROVEMENTS

### SWIMMING POOL ADDITIVES

<u>Heaters</u>		<u>Other Additives</u>	
<u>Average BTU</u>	<u>Average Price</u>		
125	999	Slides	788
250	1,300	Diving Boards	763 – 900
400	1,800	Concrete decking per square foot	7.00
		Redwood decking per square foot	16.00

NOTE: A 500 square-foot pool could be handled with 250 BTU's. Solar heating costs three to four times more than standard gas heating, average **\$3,775 to \$5,410**. See AH 531.40, page 10, for additional data on solar heated pools.

Two typical types of filters are the cartridge and the diatomaceous earth. Typically, these costs are in the basic pool. Deduct for cartridge filter **\$445**.

NOTE: Permit costs vary throughout the state ranging from **\$330 to \$1,650**.

NOTE: Pool sweeps average **\$990** but may be personal property.

### DETACHED SPAS

	<u>With Pool</u>		<u>Without Pool</u>	
Gunite	4,991	- 6,147	11,031	- 14,183
Fiberglass	3,362	- 3,887	7,880	- 8,930

### SPA ADDITIVES

Remote Control	683
Solar Control	1,339

## RESIDENTIAL HOT TUBS AND SPAS

Hot tubs are of wood construction, usually redwood or mahogany with some cedar and jarrah wood installations. They sometimes have plastic liners.

Spas are usually constructed of formed fiberglass or acrylic. More expensive, but less used, units are of ceramic tile on fiberglass backing.

Both spas and hot tubs commonly have pumps, filters, jets, blowers, and heaters that may be used in any class or size installation. Most units are gas and average about 8 percent more in cost than electric.

## **YARD IMPROVEMENTS**

There is little difference in spa and hot tub installed costs. Below- and aboveground have offsetting costs that are about equal. Replacement costs consider typical installations with normal access. Additions to existing residences may reflect excessive installation cost due to restricted access.

Standard sizes of spas are six, seven, and eight feet with 220 to 400 gallons capacity; wood tubs range from 500 to 800 gallons. Larger sizes are usually contracted under bid and are found primarily in health clubs, motor hotels, and apartment complexes. A large number of residential units are sold with the buyer doing the installation. Labor costs should be added to the historical cost of owner-installed units.

The following tables provide replacement costs for the most common installations, in place, and include materials, sales tax, and installation labor. Component deductions include materials, sales tax, and labor. Higher capacity components are interchangeably used in all classes. The components used will indicate where the replacement cost should fall in the table range of each class.

## YARD IMPROVEMENTS

### HOT TUBS-SPAS-ROUND-OCTAGONAL-SQUARE INSTALLED COST WITH FULL EQUIPMENT GAS (Factor .92 for Electric Units)

<u>Installed Unit</u>	<u>Class I 6'</u>			<u>Class II 7'</u>			<u>Class III 8'</u>		
Diameter	6'			7'			8'		
Hot Tub or Spa	4,327	-	4,894	4,533	-	5,151	4,739	-	5,409
Typical Contractors Installation, Labor (Included in Unit Cost)	1,648	-	2,163	2,163	-	2,679	2,421	-	2,679
Deduct for Lack of:									
Heaters (Gas)			876			979			1,133
Heaters (Electric)			438			490			567
Filters			335			387			464
Blowers			242			273			335
Pumps			438			490			515
Jets (Spas)			335			361			387
Jets (Hot Tubs)			335			387			412
Additional Costs									
Decks 30" Around Spa up to 8' Octagon									
6" High			Brick			670	Concrete		567
12" High 2 Steps			Brick			876	Concrete		824
<u>12' x 12' Square Pattern</u>									
Flush			Brick			824	Concrete		721
6" High			Brick			1,133	Concrete		876
12" High 2 Steps			Brick			1,236	Concrete		1,133

Jarrah wood hot tub - \$622 more than redwood.			
Tile work - concrete base - see tile-in place costs.			
Tile spa - glass base installed \$2,595 more than installed acrylic spa.			
Excavation and dirt removal - sunken installation	361	-	618
Extra material above ground installation	361	-	412
Extra installation on spas 1" thick	103		
Wood decks (common in Northern California)		16 per sq. ft.	
Remote Controls	103	-	155

## YARD IMPROVEMENTS

### CURBS

<u>Type</u>	<u>Cost Per Linear Foot</u>		
Asphalt 6" high	6.67	-	9.00
Concrete Bumper Strip 6" x 6"	8.48	-	9.10
Concrete 6" wide 12" high	9.10	-	9.70
Concrete 6" wide 18" high	10.31	-	12.12
Wood bumper rail 6" x 6"	9.70	-	11.52
Vertical curb and gutter	14.54	-	16.37

### FENCES

	<u>Cost Per Linear Foot</u> <u>Six Feet High</u>		
Redwood			
1" x 4"	16.75	-	18.00
1" x 6"	16.75	-	18.00
1" x 8"	18.00	-	21.00
1" x 10"	18.00	-	24.00
1" x 6" Paling	16.75	-	21.00
Cedar			
1" x 4"	16.75	-	18.00
1" x 6"	16.75	-	18.00
Douglas Fir	14.28	-	20.81
Tri Stake	21.42	-	25.50
Grape Stake	19.38	-	22.44
Good Neighbor	14.28	-	16.32
Basket Weave	17.34	-	20.40
Split Rail	9.35	-	13.51
Corral Fence			
Two Rail	9.35	-	13.51
Three Rail	11.22	-	17.34
Picket	10.03	-	14.31
Vinyl - 6' Solid (Add 10-15% for color)	18.00	-	23.00

### WOOD GATES

<u>Size</u>	<u>Range</u>		
3' x 6'	76.50	-	102.00
4' x 4'	76.50	-	102.00
5' x 6'	107.10	-	122.40

### CHAIN LINK GATES

<u>Width</u>	<u>Height</u>			
	<u>3'</u>	<u>4'</u>	<u>5'</u>	<u>6'</u>
3'	149	171	194	228
5'	173	206	282	319
15'	324	421	567	615



## YARD IMPROVEMENTS

### FENCES (Cont'd)

Chain Link Fences: 11 Gauge, 2" Mesh, Top Rail						Per Linear Foot	
		Height					
		4'	6'	8'	10'	12'	
		9.90	13.50	17.20	20.80	24.32	

### PAVING

<u>Cost Per Square Foot</u>			
<u>Type</u>	0 to <u>1,000</u>	1,000 to <u>10,000</u>	10,000 <u>UP</u>
2" asphalt on 4" rock base	2.63	2.50	1.68
2" pea gravel	0.50	0.44	0.40
4" concrete on 4" rock base	4.38	3.43	3.06
2" concrete aggregate on 4" rock base	4.99	4.24	3.70
2" concrete salt finish with color	6.84	6.00	-
Broom finish	5.40	4.86	3.90
Decorator concrete, stamped and stenciled		11.00	13.00

### UNCOVERED PATIOS

<u>Type</u>	<u>Cost Per Square Foot</u>
Brick in mortar	15.15
Brick in sand	14.00
Flagstone	16.50
Quarry tile	12.00

### GARDEN STEPS AND STAIRS

<u>Type</u>	<u>Cost Per Square Foot</u>
Concrete steps	24.50
Brick surface steps	24.50
Flagstone surface steps	24.50

### MOWING STRIP

<u>Type</u>	<u>Cost Per Lineal Foot</u>		
6" wide concrete	7.42	-	8.00
12" wide concrete	9.25	-	11.00
12" wide/3" rise	12.25	-	13.50
1 row brick on top	12.35	-	14.25

### CONCRETE BLOCK WALLS - INCLUDING FOUNDATION AND CAPPING COSTS

<u>Cost Per Lineal Foot</u>			
<u>Height</u>	<u>4" Thick</u>	<u>6" Thick</u>	<u>8" Thick</u>
40"	27.27	31.16	36.36
48"	32.47	37.67	41.57
56"	36.36	44.16	48.04
64"	42.85	49.35	54.56
72"	48.04	61.05	59.75

## YARD IMPROVEMENTS

### LAWN SPRINKLERS

<u>Type</u>	<u>Cost</u>
Lawn - shrubbery and bubbler heads	0.62 per. sq. ft.
Rotary pop-up rainbirds	0.66 per. sq. ft.
Rainbird heads	0.66 per. sq. ft.
Skinner lines	3.64 l. f.
Automatic Valve - Add	0.59 per sq. ft.

### PATIOS

Minimum Quality Wood Concrete slab with footings under posts, 4" x 4" posts, 4" x 6" beam, 2" x 4" rafters, 1" x 6" sheathing, and 12" overhang all around. Composition with gravel or aluminum roof cover. Wood painted or stained.		
	12.60	to 14.00 sq. ft.
Good Quality Wood Concrete slab with continuous footing. 6" x 6" posts, 6" x 8" beam, 2" x 6" or 4" x 6" rafters with 2" x 6" fascia. 1" x 8" vee groove shiplap sheathing, and 18" overhang all around. Composition with rock roof cover. Wood painted or stained.		
	16.50	to 22.50 square foot
<u>Additions</u>		<u>Cost</u>
Shingle roof		2.32 per square foot
Shake roof		2.65 per square foot
Screen walls (includes door)	28.69	- 40.82 per lineal foot
Lights	58.46	- 69.49 each
<u>Deduct for Lack of</u>		<u>Cost</u>
Concrete slab		5.60 per square foot
Continuous footing		7.00 per lineal foot
Aluminum Patios		
		<u>Cost</u>
Concrete slab, aluminum framework and enameled aluminum roof cover	11.85	- 15.00 per square foot
Additions - Screen walls (includes door)		37.24 per lineal foot
Screen walls - removable plastic panels	76.64	- 98.13 per lineal foot
Styrofoam insulated ceilings		3.31 per square foot
Lights		92.72 - 115.89 each
Deduct - for lack of slab	4.00	- 6.50 per square foot
Sun rooms	65.00	85.00 per square foot
Lattice sun screen, fiberglass or aluminum	11.25	12.50 per square foot
Barbeque islands	3,500	10,000 each

## AH 531.60: IN-PLACE COSTS

In-place costs are the total cost per unit, such as a square foot or cubic foot, of individual components or parts of a building. These individual costs can be used to build up square-foot costs or total costs of items or surfaces not included in the basic square-foot costs.

Costs in this section may be used for additions and construction-in-progress appraisals, as well as the unit-in-place cost estimating method. *Unit-in-place* is a cost estimating method in which the total building cost is estimated by adding together the unit costs for the various building components as installed. This method is also called the *segregated cost method*.

A replacement cost estimate is made by the unit-in-place method by first estimating the in-place costs per square foot of all flat surfaces such as floors, walls, ceilings, or roofs and multiplying them by the areas of the respective surfaces. The next step consists of computing the volume of other components such as foundations or footings and multiplying it by an in-place cost per unit of volume. The total cost is the sum of these costs plus the in-place cost of components such as plumbing systems, electrical systems, cabinets, doors, etc. The in-place costs used should include all elements of cost, e.g., a pro rata share of general costs such as overhead, profit, and financing fees as well as labor and material costs. This method of estimating replacement costs is particularly applicable to certain *shell type* commercial and industrial improvements.

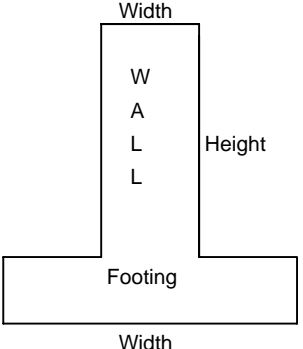
## IN-PLACE COSTS

### FOUNDATIONS - REINFORCED CONCRETE

<u>Type</u>	<u>Cost Per Cubic Foot</u>		
Footings	14.50	-	16.25
Walls	17.30	-	19.00

Foundation cost per linear foot - including footing.

	<u>Footing</u>		<u>Wall</u>		<u>Cost per Linear Foot</u>		
	<u>Width</u>	<u>Height</u>	<u>Width</u>	<u>Height</u>			
W	12"	6"	6"	6"	13.18	-	17.09
A	12	6	6	12	17.09	-	19.68
L	12	6	6	18	19.68	-	22.50
L	12	6	6	24	22.50	-	26.52
	16	8	8	12	25.66	-	30.29
Footing	16	8	8	24	35.57	-	39.17
Height	16	8	8	36	39.17	-	42.67
Width							

### HILLSIDE FOUNDATIONS

	<u>Cost</u>		
Retaining walls	21.60	-	30.60 per cubic foot
Reinforced concrete columns 16" circular	43.20	-	60.00 per linear foot
Steel columns: 6" diameter	48.00	-	72.00 per linear foot
8" diameter	60.00	-	96.00 per linear foot
10" diameter	78.00	-	120.00 per linear foot
Pipe columns: 4" diameter	39.60	-	60.00 per linear foot
6" diameter	55.20	-	68.40 per linear foot
8" diameter	72.00	-	91.20 per linear foot
Wood poles: 10" diameter	39.60	-	60.00 per linear foot
12" diameter	48.00	-	68.40 per linear foot
14" diameter	50.40	-	78.00 per linear foot
Caissons: 24" diameter (depending on depth to bedrock)	4,800	-	14,400 each

For Class 8 and above on 35% to 40% slope, add 30% to 40% to total building costs.

### FLOORS - REINFORCED CONCRETE

<u>Size and Type</u>	<u>Cost Per Square Foot</u>		
4" slab only	3.60	-	4.10
6" slab only	4.27	-	4.63
8" slab only	4.63	-	5.57
4" with 4" rockfill and waterproof membrane	3.96	-	4.63
6" with 6" rockfill and waterproof membrane	5.18	-	5.52
8" with 8" rockfill and waterproof membrane	5.52	-	6.48

### MUDSILLS

<u>Size and Type</u>	<u>Cost Per Linear Foot</u>		
2" x 4" redwood	2.83	-	3.15
2" x 6" redwood	3.15	-	3.82

Cost includes treating, boring, and bedding.

## IN-PLACE COSTS

### GIRDERS

<u>Size and Type</u>	<u>Cost Per Linear Foot</u>		
4" x 6" Douglas Fir	3.13	-	4.09
4" x 8" Douglas Fir	3.64	-	4.25
4" x 10" Douglas Fir	4.25	-	4.61
4" x 12" Douglas Fir	5.21	-	6.70
6" x 6" Douglas Fir	4.25	-	5.21
6" x 8" Douglas Fir	4.61	-	5.57
6" x 10" Douglas Fir	4.25	-	6.07
6" x 12" Douglas Fir	5.89	-	6.68
8" x 8" Douglas Fir	6.68	-	7.12

### FLOOR JOISTS

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>		
2" x 4" - 16" on center	1.78	-	2.28
2" x 4" - 24" on center	1.61	-	2.14
2" x 6" - 16" on center	2.28	-	2.69
2" x 6" - 24" on center	1.87	-	2.33
2" x 8" - 16" on center	2.86	-	3.14
2" x 8" - 24" on center	2.66	-	2.93
2" x 10" - 16" on center	2.93	-	3.39
2" x 10" - 24" on center	2.75	-	3.14
2" x 12" - 16" on center	3.38	-	3.73
2" x 12" - 24" on center	2.75	-	3.14

### WALLS - CONCRETE OR MASONRY

<u>Size and Type</u>	<u>Cost Per Square Foot of Wall Area</u>		
Brick			
8" common brick	23.35	-	27.19
12" common brick	29.09	-	32.84
8" common brick, 1 side face brick	27.19	-	29.09
12" common brick, 1 side face brick	30.88	-	35.15
Concrete block reinforced			
8" gray	13.33	-	14.30
8" colored	14.30	-	15.24
8" detailed blocks, gray	14.30	-	15.24
8" detailed blocks, colored	14.30	-	15.24
8" sandblasted	13.33	-	14.30
8" splitface, gray	24.71	-	26.62
8" splitface, colored	23.60	-	25.66
8" slumpstone, gray	23.60	-	25.66
8" slumpstone, colored	24.71	-	26.62
12" gray	14.30	-	15.24
4" screen block	13.33	-	15.24

## IN-PLACE COSTS

### SUB FLOORING

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>		
1" x 6" or 8"	2.51	-	2.58
2" T & G	3.47	-	4.09
5/8" plywood	2.62	-	2.99
3/4" plywood	2.88	-	3.30
1 1/8" plywood	3.07	-	3.38
1/2" particle board	1.78	-	2.25
3/8" particle board	1.53	-	2.06

### WOOD FRAME WALL FRAMING

<u>Size and Type</u>	<u>Cost Per Square Foot of Wall Area</u>		
2" x 3" - 16" on center	2.43	-	2.98
2" x 3" - 24" on center	2.19	-	2.61
2" x 4" - 16" on center	2.61	-	3.15
2" x 4" - 24" on center	2.43	-	2.98
2" x 6" - 16" on center	3.15	-	3.60
2" x 6" - 24" on center	2.98	-	3.34

### WOOD POSTS

<u>Size and Type</u>	<u>Cost Per Linear Foot of Height</u>		
4" x 4" Douglas Fir	4.95	-	5.59
4" x 6" Douglas Fir	5.21	-	5.87
6" x 6" Douglas Fir	5.59	-	6.01
8" x 8" Douglas Fir	6.66	-	7.57
10" x 10" Douglas Fir	9.03	-	9.90
12" x 12" Douglas Fir	13.49	-	16.19

### WALL SHEATHING

<u>Size and Type</u>	<u>Cost Per Square Foot of Wall Area</u>		
#15 felt	0.54	-	0.63
Line wire	0.46	-	0.53
1/2" asphalt impregnated gypsum board	1.58	-	1.64
1/2" fibre board	1.61	-	1.69
3/8" plywood	2.10	-	2.62
1" boards solid	2.32	-	3.01
1" x 4" or 6" spaced	1.61	-	1.85

### CEILING JOISTS

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>		
2" x 4" - 16" on center	2.60	-	2.75
2" x 4" - 24" on center	2.38	-	2.51
2" x 6" - 16" on center	2.76	-	2.93
2" x 6" - 24" on center	2.51	-	2.60
2" x 8" - 16" on center	2.86	-	3.02
2" x 8" - 24" on center	2.60	-	2.76
2" x 10" - 16" on center	2.93	-	3.12
2" x 10" - 24" on center	2.69	-	2.86
2" x 12" - 16" on center	3.02	-	3.21
2" x 12" - 24" on center	2.76	-	2.93

## IN-PLACE COSTS

### ROOF RAFTERS

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>		
	<u>Flat-roof</u>	<u>5 in 12 Rise</u>	<u>12 in 12 Rise</u>
2" x 4" - 16" on center	2.74	3.19	3.69
2" x 4" - 24" on center	2.37	3.00	3.54
2" x 4" - 30" on center	2.28	2.92	3.35
2" x 6" - 16" on center	3.00	3.45	3.97
2" x 6" - 24" on center	2.65	3.27	3.81
2" x 8" - 16" on center	3.27	3.69	4.24
2" x 8" - 24" on center	2.92	3.54	4.05
Includes ridge boards, collar ties, purlins, bracing, and typical overhang.			

### ROOF SHEATHING & DECKING

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>		
	<u>Flat-roof</u>	<u>5 in 12 Rise</u>	<u>12 in 12 Rise</u>
3/4" cellular concrete	1.72		
2" gypsum poured	2.10		
1 1/2" insulation board	4.56	4.75	6.23
2" insulation board	5.20	5.58	7.26
1" solid wood boards	1.96	2.15	2.99
1" x 4" or 6" spaced wood board	1.13	1.24	1.58
3/8" plywood	1.70	1.80	2.71
1/2" plywood	2.18	2.30	3.06
5/8" plywood	2.30	2.38	3.25
2" T & G	4.45	4.84	6.70

### ROOFING

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>	
	<u>Flat-roof to 3 in 12 Rise</u>	<u>6 in 12 Rise</u>
Built-up roofing		
3 layers 15 lb. felt hot mopped with pea gravel	1.90	2.63
4 layers 15 lb. felt hot mopped with pea gravel	2.35	2.25
1 layer 30 lb. felt with a 90 lb. cap sheet	1.69	2.06
1 layer 30 lb. felt, 2 layers 15 lb. felt hot mopped with pea gravel	1.90	2.46
1 layer 30 lb. felt, 3 layers 15 lb. felt hot mopped with pea gravel	2.35	2.66

## IN-PLACE COSTS

### ROOFING (Contd.)

<u>Size and Type</u>	<u>Cost Per Square Foot of Floor Area</u>		
	<u>3 in 12 Rise</u>	<u>5 in 12 Rise</u>	<u>12 in 12 Rise</u>
Asphalt composition shingles			
168 lb. hex. strip with 15 lb. felt		1.92	2.50
235 lb. square strip with 15 lb. felt		2.50	3.84
Wood shingles			
16" #1 red cedar 4 1/2" exposure		3.55	4.36
24" royals 7 1/2" exposure		3.74	4.78
Natural shakes			
1/2" to 3/4" red cedar		3.58	4.36
3/4" to 1 1/4" red cedar		4.75	5.38
Asbestos shingles with 38 lb. felt		4.40	5.64
Clay tile			
Red mission tile with 2 layers			
40 lb. felt and 1 layer of			
30 lb. felt hot mopped		5.55	6.95
Red shingle tile with 2 layers			
40 lb. felt with 1 layer			
30 lb. felt hot mopped		4.67	5.44
Concrete tile/shake	2.78	3.16	4.39
Slate			
Pennsylvania black 30 lb. felt	10.81	12.14	17.62
Metal			
Aluminum interlock shingles		5.65	7.04
Aluminum corrugated 24 gauge	2.90	3.34	3.22
Galvanized iron corrugated 26 gauge	3.73	3.80	4.36
Copper standing seam 10 oz.	13.36	13.75	17.15
Copper flat lock 10 oz.	13.91	14.62	18.17
Cost includes typical overhangs.			

### LIGHTS

	<u>Cost</u>	
Sky lights	1,400 -	1,700 each
Light tube	360 -	400 each
Extra tubing		25.00 per linear foot

### GUTTERS

<u>Size and Type</u>	<u>Cost Per Linear Foot</u>	
O.G. galvanized gutters - painted	6.96 -	7.63
6" deep galvanized gutters - painted	9.24 -	10.03
8" deep galvanized gutters - painted	10.03 -	10.78
Downspouts, galvanized - painted	5.44 -	6.19



## IN-PLACE COSTS

### WALL COVER - EXTERIOR

<u>Size and Type</u>	<u>Cost Per Square Foot of Wall Area</u>		
Aluminum siding			
Horizontal, colored	4.42	-	4.80
Horizontal, colored, insulated	4.61	-	4.99
Vertical, colored	4.80	-	5.08
Vertical, colored, insulated	4.99	-	5.16
Masonry veneer - Brick			
Select common	14.23	-	17.08
Red jumbo	13.66	-	15.62
Roman	22.08	-	23.96
Norman	18.19	-	20.12
Glazed	29.64	-	31.63
Rock facia	17.30		19.78
Concrete block			
4" gray	11.72	-	12.71
4" colored	12.24	-	13.20
4" splitface, gray	19.37	-	21.31
4" splitface, colored	21.31	-	23.50
4" slumpstone, gray	21.31	-	22.50
4" slumpstone, colored	19.37	-	21.31
Imitation stone	21.60	-	26.17
Natural stone	25.22	-	28.06
Shingles and shakes			
Aluminum	6.30	-	6.84
Asbestos	4.17	-	4.62
Asphalt	2.21	-	2.38
Natural shakes	6.33	-	6.77
Wood shingles	5.45	-	5.90
Shake panels	5.90	-	6.33
Stucco			
1" on masonry	3.43	-	4.30
1" on wire	3.43	-	4.30
Wood siding			
1/4" hardboard prime painted	2.93	-	3.27
7/16" hardboard prime painted	3.66	-	4.09
3/8" plywood prime painted	3.35	-	3.62
3/8" plywood plastic coated	4.53	-	4.80
3/8" plywood rough cedar	3.00	-	3.20
5/8" plywood texture III	3.20	-	3.62
5/8" plywood redwood textured	4.07	-	4.26
1/2" bevel siding	2.92	-	3.27
3/4" bevel siding	3.62	-	3.82
3/4" bevel siding, mitered corners	3.82	-	4.19
1" rustic or lap siding (cedar)	3.62	-	3.82
1" rustic or lap siding (redwood)	4.45	-	4.70

## IN-PLACE COSTS

### FLOOR COVERING

<u>Size and Type</u>	<u>Cost Per Square Foot</u>		
Asphalt tile	1.02	-	1.25
Carpet			
Low cost cotton, nylon, or acrylic	2.21	-	2.54
Medium price wool, nylon, or acrylic	2.98	-	3.37
High price wool, nylon, or acrylic	4.23	-	Up
Ceramic tile (mosaic including base)	9.38	-	12.71
Cork tile	3.35	-	4.00
Cork tile, vinyl coated	3.85	-	5.46
Leather	26.53	-	43.71
Linoleum	2.97	-	3.81
Epoxy-type floor only (Torginol, etc.)	5.06	-	6.77
Quarry tile			
Regular grout	12.97	-	14.70
Epoxy grout	15.53	-	16.38
Rubber tile	4.47	-	5.92
Terrazzo	13.25	-	16.56
Vinyl asbestos tile	1.99	-	2.32
Vinyl sheeting	3.55	-	4.15
Vinyl tile - solid	3.63	-	4.97
Wood flooring			
Douglas fir			
1" x 4" flat grain T & G	6.56	-	6.96
1" x 4" vertical grain T & G	6.96	-	7.73
Oak			
5/16" x 1 1/2" square edge #. 2 common	8.70	-	9.20
5/16" x 1 1/2" square edge #. 1 common	9.34	-	10.00
1/2" x 2" T & G #. 2 common	9.34	-	10.00
1/2" x 2" T & G #. 1 common	10.77	-	11.27
1/2" x 2" T & G select	11.00	-	11.53
1/2" x 2" T & G clear	11.00	-	11.53
13/16" x 2 1/4" T & G #. 2 common	11.33	-	11.57
13/16" x 2 1/4" T & G #. 1 common	11.33	-	11.57
13/16" x 2 1/4" T & G select	11.27	-	11.75
13/16" x 2 1/4" T & G clear	11.75	-	12.50
13/16" x 2 1/4" T & G select quartered	12.00	-	13.00
Oak parquetry			
5/16" #. 1 common set in mastic	9.92	-	10.50
3/16" clear plain	10.36	-	11.04
Oak random plank			
5/16" beveled edge	9.41	-	9.95
3/16" T & G	11.06	-	11.62
Maple			
13/16" x 2 1/4" T & G	11.81	-	15.01

## IN-PLACE COSTS

### FLOOR BASE

<u>Size and Type</u>	<u>Cost Per Linear Foot</u>		
Epoxy cover base (2 1/2" to 6")	12.05	-	13.96
Rubber (4" to 6")	4.63	-	5.60
Wood (pine) (2 1/2" to 6")	5.18	-	6.46
Wood (hardwood) (2" to 6")	8.15	-	8.56
Terrazzo	14.33	-	17.68
Vinyl (2 1/2" to 4")	2.62	-	3.46

### INTERIOR WALL LINING

<u>Size and Type</u>	<u>Cost Per Square Foot of Wall Area</u>		
Gypsum board			
1/2" taped and sanded	1.32	-	1.51
5/8" taped and sanded	1.40	-	1.58
1/2" taped, textured and painted	1.84	-	2.20
5/8" taped, textured and painted	2.01	-	2.36
1/2" taped, stippled and enameled	2.36	-	2.71
5/8" taped, stippled and enameled	2.54	-	2.89
Hardboard			
1/8"	2.14	-	2.48
1/4"	2.48	-	2.66
1/8" plastic coated with metal trim	5.75	-	7.51
1/4" plastic coated with metal trim	6.61	-	8.44
1/4" wood grain finish	2.93	-	4.45
Lath			
Gypsum lath	1.12	-	1.43
Metal lath	1.51	-	1.74
Plaster			
2 coats, no lath	3.58	-	4.47
3 coats, no lath	4.47	-	5.36
Plywood paneling (hardwood)			
1/4" prefinished	4.23	-	6.58
1/4" unfinished	3.63	-	6.18
7/16" prefinished	6.18	-	9.92
3/4" unfinished	6.58	-	8.41
Tile			
Ceramic	9.88	-	12.85
Plastic	7.33	-	9.17
Tile board or marlite, metal trim	6.93	-	8.63
Terrazzo	17.42	-	21.88
Torginol	5.80	-	6.80
Wood Paneling			
Knotty Pine	3.96	-	4.38
Red Cedar	4.55	-	5.57
Redwood	4.55	-	5.57

## IN-PLACE COSTS

### CEILING FINISH

<u>Size and Type</u>	<u>Cost Per Square Foot</u>		
Gypsum board			
1/2" taped and sanded	1.36	-	1.51
5/8" taped and sanded	1.45	-	1.71
1/2" taped, textured and painted	1.90	-	2.12
5/8" taped, textured and painted	2.09	-	2.66
1/2" taped, stippled and enameled	2.44	-	2.71
5/8" taped, stippled and enameled	2.61	-	2.81
1/2" taped with acoustical texture	1.79	-	2.20
5/8" taped with acoustical texture	1.92	-	2.35
Lath			
Gypsum lath	1.04	-	1.16
Metal lath	1.27	-	1.44
Plaster			
2 coats, no lath	3.44	-	4.05
3 coats, no lath	3.60	-	4.43
3 coats, suspended on metal lath	6.06	-	6.45
1/2" acoustical plaster, no lath	5.35	-	5.69
Acoustical tile			
Stapled to furring strips (not including strips)			
3/4" x 12" x 12"	2.71	-	3.58
Suspended in "T" bar grid (including cost of grid)			
1/2" x 24" x 48"	2.78	-	3.66
1/2" x 24" x 24"	2.91	-	4.01
1/2" x 24" x 24" vinyl coated	3.89	-	4.75
Suspended in concealed "Z" bar-type grid (including cost of grid)			
3/4" x 12" x 12"	3.96	-	4.96
3/4" x 12" x 12" vinyl coated	4.37	-	5.26
Suspended on 1/2" gypsum board (including grid and gypsum board)			
3/4" x 12" x 12"	4.96	-	5.69

### EXTERIOR PAINTING

<u>Type</u>	<u>Cost Per Square Foot of Residence</u>		
Latex, 1 coat	1.01	-	1.18
Oil base, 2 coats	1.69	-	1.90
Oil base, 3 coats	2.10	-	2.25
Spray painting, 2 coats	1.90	-	2.10
Stain, 1 coat and sealer	1.24	-	1.43
Stucco wash, 1 coat	0.98	-	1.16
Stucco wash, 2 coats	1.16	-	1.36
Vinyl on stucco, 2 coats	1.60	-	1.84

## IN-PLACE COSTS

### INTERIOR DECORATING

<u>Type</u>	<u>Cost Per Square Foot of Residence</u>		
Painting			
On gypsum board or plaster			
Primer and 1 coat flat	3.27	-	3.66
Primer and 2 coats flat	4.66	-	5.46
Primer and 1 coat enamel	3.27	-	3.66
Primer and 2 coats enamel	4.66	-	5.46
Wood work			
Primer and 1 coat enamel	4.66	-	5.46
Primer and 2 coats enamel	5.46	-	6.52
Masonry			
Primer and 1 coat latex	4.20	-	4.66
Primer and 2 coats latex	4.99	-	5.46
Wall covering			
Aluminum foil	15.51	-	17.64
Paper	11.72	-	13.25
Vinyl wall cover	8.99	-	11.91

### TRIM PAINTING

<u>Type</u>	<u>Cost Per Linear Foot</u>		
Exterior trim to 6", 2 coats	1.04	-	1.18
Interior trim			
Primer and 1 coat enamel	0.63	-	0.79
Primer and 2 coats enamel	0.94	-	1.12

### DOORS

<u>Size and Type</u>	<u>Cost Per Door</u>		
Exterior doors			
Colonial 1 3/4" fir	284	-	329
Dutch door 1 3/4" fir	413	-	484
French doors	369	-	413
Solid core slab single door	314	-	329
Solid core slab double door	284	-	314
Hardwood door	484	-	Up
Includes frame, trim, threshold, and hardware			
Garage doors - Overhead type			
8' x 7' all aluminum	834	-	978
16' x 7' all aluminum	1035	-	1,380
8' x 7' aluminum - wood frame	386	-	477
16' x 7' aluminum - wood frame	735	-	827
8' x 7' plywood	477	-	514
16' x 7' plywood	876	-	1026
18' x 7' plywood	791	-	863

## IN-PLACE COSTS

## DOORS (Contd.)

<u>Size and Type</u>	<u>Cost Per Door</u>		
Sectional roll up			
8' x 7' aluminum	2,300	-	2,450
16' x 7' aluminum	2,600	-	2,700
8' x 7' fiberglass on aluminum frame	2,300	-	2,410
16' x 7' fiberglass on aluminum frame	2,440	-	2,580
8' x 7' steel	2,100	-	2,300
16' x 7' steel	2,700	-	2,800
Interior doors			
Hollow core slab doors	277	-	313
Solid core slab doors	313	-	352
Panel doors - flat panel	277	-	313
Panel doors - raised panel	313	-	352
Includes frame, trim, and hardware			
Sliding glass doors			
6' x 6'8" aluminum	449	-	510
8' x 6'8" aluminum	504	-	651
12' x 6'8" aluminum	929	-	991
Mirrored wardrobe closet doors	213	-	249
French pantry door	444	-	504

## WINDOWS

Type	Cost Per Window		
Aluminum	524	-	780
Steel	574	-	820
Wood	451	-	656
Decorative glass block (Per square foot)	56	-	72

## CABINETS

Type	Cost Per Linear Foot								
	Painted Fir			Low Cost Veneer			Good Hard-wood Veneer		
Base cabinet	76.96	-	82.67	69.83	-	79.83	79.83	-	99.77
Upper cabinet	55.59	-	69.83	51.31	-	59.86	69.83	-	79.83
Full height	119.72	-	142.53	106.90	-	133.97	128.27	-	155.35
Bath pullman	58.43	-	82.67						
Open shelving	3.70	-	4.99						
Melamine Interiors							58.05	-	77.40
							<u>Cost Each</u>		
Wood entertainment center						1,328	-		3,018
<u>Counter Tops Including Splash</u>									
						<u>Cost Per Linear Foot</u>			
Ceramic tile						63.22	-		71.02
Formica						44.28	-		38.28
Imitation marble						58.12	-		70.66
Granite						181.13	-		241.50
Concrete						75.00			200.00
Kitchen Corian						138.86	-		169.05
Butcher block						72.46	-		120.75

## IN-PLACE COSTS

### ELECTRICAL

<u>Type</u>	<u>Cost Per Outlet</u>		
110 volt average romex	71	-	89
110 volt average conduit	104	-	133
220 volt wiring for range and oven	444	-	526
220 volt wiring for dryer	444	-	526

### PLUMBING

<u>Type</u>	<u>Cost Per Fixture</u>		
Bathtubs	724	-	1,674
Laundry trays	1147	-	1,207
Lavatories	380	-	826
Service sinks	686	-	913
Shower (Stall)	761	-	1,066
Tile shower stall	2,208	-	4,140
Urinals	571	-	686
Water closets	533	-	1,217
All fixture costs include the cost of rough plumbing.			

### LIGHTING

	<u>Cost Per Fixture</u>		
Track lights, 4 foot	316	-	403
Track lights, 8 foot	431	-	546
Recessed can	115	-	144
Recessed mini can	144	-	173
Eyeball spot light	144	-	173

### FAN

	<u>Cost Per Fixture</u>		
Ceiling fans	345	-	1,150

### ENERGY REQUIREMENTS MANDATED BY AB 970 (2001)

	<u>Cost</u>	<u>Climate Zones *</u>
Radiant barrier	355	2, 4, 7-15
Spectrally selective glass	474	2, 4, 8-15
Duct sealing with testing	207 - 355	All
Thermostatic expansion valves (TXV)	60	2, 8-15
Adds approximately <b>\$1,400</b> for a typical 2,000 square foot residence for Climate Zones 2 and 8-15. Climate zones 1,3, 5, and 6 only require duct sealing.		

\* See section AH 531.80, *Useful Information*, following in this handbook for Climate Zone Map.

# AH 531.70: DEPRECIATION

## DEFINITIONS

An essential part of the cost approach is the estimation of depreciation, and the usefulness of this approach depends greatly upon the appraiser's ability to make this estimate. This discussion is confined to the application of normal percent good factors to replacement cost new to arrive at replacement cost less normal depreciation. A more detailed discussion of depreciation may be found in Assessors' Handbook Section 501, *Basic Appraisal*.

### PERCENT GOOD TABLES

*Accrued depreciation* is considered to be the difference between replacement cost new and current value.

*Percent good* is the complement of accrued depreciation. If accrued depreciation is 20 percent, percent good is 80 percent. The percent good concept is used because it saves one arithmetic operation in calculating replacement cost new less normal depreciation.

In a mass appraisal program, speed and uniformity in depreciation estimates are accomplished by the use of normal percent good tables. Percent good factors reflect the average loss in value that improvements suffer over time from normal or usual causes. They include normal physical deterioration and normal functional obsolescence, but they do not include value losses caused by unusual physical deterioration, unusual functional obsolescence, or economic obsolescence.

There are two types of normal percent good tables for structures. They are designated as "R" and "OR" tables. "R" tables are generally applicable to residential-type buildings, and "OR" tables are applicable to "other-than-residential" buildings. For each of the two types there are a number of different tables for buildings with various life expectancies.

Individual tables are designated as type "R" or "OR," with a total life expectancy in years. For example, the proper table for a residential building with a 60-year total life expectancy is designated as "R-60."

### AVERAGE LIFE TABLES

Average life tables direct the appraiser to the proper normal percent good table. This selection is based upon the following three factors:

- Use type
- Construction type
- Quality classification

Use type refers to the use that is currently being made of the improvement. It may or may not be the same as the original design type that the building cost is based upon.



Construction type and quality classification are based upon the same standards as those set forth in the standard classification system for these two building characteristics.

## **REMAINING LIFE EXPECTANCY TABLES**

Remaining life expectancy tables are also included with the normal depreciation tables. These tables show a remaining life expectancy for an item at each age of its life. These tables are intended as general information for the appraiser and may or may not be applicable in a specific instance.

## **EXTENDED LIFE CONCEPT**

The percent good tables incorporate an extended life concept. In this concept, percent good and remaining life expectancy are based upon the expectancy at any age of a surviving item of a larger original group. Thus, a given item that has a probable life expectancy of 60 years when new may have some remaining life, and therefore value, when it is 60 years old. This stems from the fact that the 60-year average life for the group is attained by the early retirement of some items and the later retirement of others.

## **EFFECTIVE YEAR**

Two items must be known in order to select the proper normal percent good of a structure from the table—the average life and the age of the structure. The average life is obtained from the "average-life table," and the age is calculated by subtracting the *effective year* (see next paragraph) from the appraisal year. Normal percent good and remaining life can be found from the table by selecting the age in years from the age column and reading horizontally to the proper average life column.

In most buildings the effective year is the same as the year of construction. Changes in effective year should not be made unless a significant change has been made in the improvement. However, when a building has been remodeled or added to, or is not architecturally representative of its date of original construction, the effective year may differ from the actual year of construction.

The assignment of an effective year is an appraisal estimate rather than a mechanical calculation. Knowledge of architectural and functional characteristics of structures and the changes in these characteristics over time is the key to estimating the effective year of structures. These characteristics cause structures to fall into eras or age groups. Age groups may be identified by the appraiser, and a year that most nearly reflects the effective age of a structure is assigned.

## **REMODELING**

Remodeling is the major reason for adjusting the effective year. Remodeling may be such that a building *appears* to be new. If this is the case, the effective year should be selected as if it were a new building. Usually, however, remodeling only partially cures functional obsolescence, and

the effective year is therefore adjusted to a time somewhere between the original date of construction and the current year.

Remodeling certain portions of a building has a greater influence on the effective year than remodeling other portions would have. Remodeling the bathrooms and the kitchen of a house will have greater effect than remodeling of less-used or less-seen portions of a house.

Some remodeling may be classified as normal maintenance. The individual replacement of water heaters, a worn-out roof, new paint inside and out, etc., are not usually reasons for adjusting the effective year. A combination of these things could, if extensive enough, change the effective year. As a general rule, the effective year should not be changed unless the remodeling has cured some functional obsolescence or has significantly cured some physical deterioration.

### **ADDITIONS**

Additions may cause a change in effective year if the addition increases the overall utility of the improvement. If an addition modernizes the improvement, the effective year may be shifted forward. The addition of a family room, an extra bath, extra bedrooms, or a formal dining room to a residence could, individually or jointly, cause a change in effective year. On the other hand, the addition of a bedroom to a five-bedroom house would probably not change the effective year.

### **PHYSICAL CONDITION**

While the value of a building may vary considerably with its condition, effective year changes are not generally made as a result of condition. Normal percent good computations are based on the assumption that the building is in average condition for its age.

While the condition of a building does have a significant influence on its value, the effective year is not generally changed for this reason because it is a temporary situation relative to total building life. Building conditions may vary considerably in a short period of time; for example, a building may be in poor condition one year, completely renovated the next year, and then allowed to deteriorate again. Effective year changes should be reserved for permanent situations.

Value differences due to physical condition should be considered in a step in the appraisal process that is subsequent to the computation of RCNLD.

### **MECHANICAL AIDS FOR ESTIMATING AGE**

An average dollar age or average date of construction of buildings can be computed by weighting the current costs of the original building and of each subsequent addition or investment.

**Example A:**

Assume that the current replacement cost of the original portion of a building built in 1982 is \$100,000 and that the RCN of an addition built in 1992 is \$30,000. The mathematical process of arriving at a weighted age as of 2002 is as follows.

$$\begin{array}{rcl}
 \$100,000 \times 20 \text{ (Age of Original Construction)} & = & \$2,000,000 \\
 \underline{\$30,000 \times 10 \text{ (Age of Addition)}} & = & \underline{\underline{300,000}} \\
 \$130,000 & & \underline{\underline{\$2,300,000}}
 \end{array}$$

Average age of construction:  $\$2,300,000 \div \$130,000 = 17.69$  years, say 18 years

**Example B:**

Historical costs may be used in a similar manner. They must first be converted to current costs by use of cost index factors.

Year of Construction	Historical Cost	*2002 Cost Index Factor	Cost Factored to 2002	Age (Years)	Weighted Dollar Years
1982	\$100,000	2.07	\$207,000	20	\$4,140,000
1992	\$30,000	1.30	<u>\$39,000</u>	10	<u>\$390,000</u>
			\$246,000		\$4,530,000

\* Building cost indices are distributed to county assessors by Letter To Assessors in January of each year.

Average age of construction:  $\$4,530,000 \div \$246,000 = 18.41$  years.

These methods are, at best, only guides. Additional capital outlays on a building may not change its architectural or functional characteristics in proportion to the amount of the outlay, or they may not change these characteristics at all. In the final analysis, the estimation of an effective year is dependent upon the appraiser's knowledge and judgment. At best, an average age of construction tends to set the latest year that should be assigned for effective age.

## AVERAGE LIFE TABLES FOR BUILDINGS

Type of Schedule & Average Life		Classification									
Construction Type	Use Type	1	2	3	4	5	6	7	8	9	10
C	Multiple Res <sup>1</sup>				50	50	55	55	60	60	60
C	Residence <sup>2</sup>				55	55	60	60	60	60	60
D	Multiple Res <sup>1</sup>				50	50	55	55	60	60	60
D	Residence <sup>2</sup>	30	50	50	55	55	60	60	60	60	60

Average life assumes normal maintenance but no functional obsolescence due to poor design.

When a decimal classification is used, apply the average life for the nearest whole classification. When a half-classification (e.g., 5.5) is used, raise to the next higher classification (e.g., 6) for selection of the average life. Exception to this rule applies to a split classification between D1 and D2 structures of residence use types. For residences of class D1.5, use an average life of 40 years.

<sup>1</sup> This table is applicable to residential buildings of more than two living units each.

<sup>2</sup> This table is applicable to residential buildings of one or two living units each.

## DEPRECIATION

### NORMAL PERCENT GOOD TABLES - RESIDENTIAL BUILDINGS

Age Years	20 Years Avg Life		25 Years Avg Life		30 Years Avg Life		40 Years Avg Life	
	Rem Life Years	Percent Good	Rem Life Years	Percent Good	Rem Life Years	Percent Good	Rem Life Years	Percent Good
0	20	100	25	100	30	100	40	100
1	19	94	24	95	29	96	39	98
2	18	88	23	90	28	93	38	96
3	17	81	22	86	27	89	37	94
4	16	75	21	81	26	86	36	92
5	15	69	20	77	25	82	35	90
6	14	63	19	72	24	79	34	87
7	13	59	18	68	23	75	33	84
8	12	57	17	63	22	71	32	82
9	11	55	16	60	21	67	31	80
10	11	53	16	58	20	64	30	77
11	10	50	15	56	19	60	29	74
12	9	48	14	54	19	59	28	72
13	8	46	13	53	18	57	27	70
14	7	44	12	51	17	56	27	67
15	7	42	11	49	16	54	26	65
16	6	40	11	48	15	53	25	62
17	5	38	10	46	14	52	24	60
18	5	36	9	44	13	50	23	59
19	4	33	8	43	13	49	22	58
20	4	31	7	41	12	47	21	56
21	3	29	7	39	11	46	21	55
22	3	27	6	37	11	44	20	54
23	3	25	6	35	10	43	19	53
24	3	23	5	34	9	42	18	52
25	2	21	5	32	9	40	17	51
26	2	19	4	30	8	39	17	50
27	2	16	4	29	7	37	16	49
28	2	14	4	27	7	36	15	48
29	2	12	3	25	6	34	14	47
30	1	10	3	24	6	33	14	46
31			3	22	5	31	13	45
32			3	20	5	30	12	44
33			2	18	5	29	12	43
34			2	17	4	27	11	42
35			2	15	4	26	11	41
36			2	13	4	24	10	40
38			1	10	3	21	9	38
40					2	19	7	35
42					2	16	6	33
46					1	10	5	29
50							4	25
55							3	20
60							2	14
64							1	10

## DEPRECIATION

### NORMAL PERCENT GOOD TABLES - RESIDENTIAL BUILDINGS

Age Years	45 Years Avg Life		50 Years Avg Life		55 Years Avg Life		60 Years Avg Life	
	Rem Life Years	Percent Good	Rem Life Years	Percent Good	Rem Life Years	Percent Good	Rem Life Years	Percent Good
0	45	100	50	100	55	100	60	100
2	43	97	48	97	53	98	58	98
4	41	93	46	94	51	96	56	96
6	39	89	44	91	49	94	54	94
8	47	85	42	88	47	91	52	92
10	35	81	40	85	45	88	50	90
12	33	77	38	82	43	85	48	88
14	32	73	36	78	41	82	46	86
15	30	69	35	74	40	79	45	83
18	28	65	33	70	38	76	43	80
20	26	60	31	67	36	73	41	77
22	24	58	29	63	34	69	39	74
24	23	56	28	60	32	65	37	71
26	22	54	26	58	31	62	35	68
28	20	52	24	56	29	60	34	65
30	18	50	23	54	27	58	32	63
32	17	48	21	53	26	56	30	60
34	15	47	20	41	24	55	29	58
36	14	45	18	49	23	53	27	57
38	12	43	17	48	21	51	26	55
40	11	41	16	45	20	50	24	54
42	10	39	14	44	19	48	23	52
44	9	37	13	42	17	46	21	51
46	8	35	12	40	16	45	20	49
48	7	33	11	38	15	43	19	47
50	6	31	10	37	14	41	18	46
52	5	29	9	35	12	40	16	44
54	5	28	8	33	11	38	15	43
56	4	26	7	31	10	36	14	41
58	4	24	6	30	9	35	13	40
60	3	22	5	28	8	33	12	38
62	3	20	4	26	7	31	11	37
64	3	18	4	24	6	30	10	35
66	2	16	3	22	5	28	9	33
68	2	14	3	21	5	27	8	32
70	2	12	3	19	4	25	7	30
72	1	10	2	17	4	23	6	29
76			2	14	3	20	6	26
80			1	10	2	17	5	23
84					1	10	3	16
96							2	10

# AH 531.80: USEFUL INFORMATION

## ABBREVIATIONS

For use on building records

Acoustic	Acou	Improvements	Imp	Rustic, V.	V Rus
Addition	Add	Knotty Pine	KP	Sand Plaster	S Pl
Air Conditioning	AC	Laundry	Ldry	Sanitas	San
Aluminum	Al	Lavatory	Lav	Second Story	2nd Sty
Asbestos	Asb	Lineal Feet	Lin Ft	Shake	Shk
Asphalt	Asp	Linoleum	Lino	Sheathing	Shtg
Basement	Bsmt	Masonite	Mas	Sheetrock	SR
Barbecue	Bbq	Medium	Med	Shingle	Shg
Beam	Bm	Metal	Met	Sliding Door	Sld Dr
Bidet	Bid	Mud Sills	MS	Sprinkler	Spr
Block	Blk	On Center	o.c.	Steel	Stl
Board & Batten	B&B	Oregon Pine	OP	Stucco	Stc
Brick	Br	Overhead Balanced Door	OB Dr	Terrazzo	Trzo
Ceiled	Cld	Paint	Pt	Thermostat	Thermo
Ceramic Tile	C Ti	Paper	Pa	Thousand	M
Composition	Comp	Parquet	Parq	Tile	Ti
Concrete	Conc	Partially Complete	PC	Tongue & Grooved	T&G
Construction	Constr	Philippine Mahogany	P Mng	Unfinished	Unf
Corrugated Aluminum	Cor Al	Plaster Board	Pl Bd	Urinal	Ur
Corrugated Iron	Cor I	Plaster & Paint	Pl&Pt	Veneer	Ven
Diagonal	Diag	Plaster & Paper	Pl&Pa	Vinyl	Vin
Douglas Fir	DF	Plastic	Plas	Wainscot	Wsct
Electric	Elec	Plate	Plt	Wallboard	W Bd
Enameled	En	Plumbing	Plmg	Wallpaper	W Pa
Fireplace	Fp	Plywood	Pw	Walnut	Wal
First Story	1st Sty	Porcelain	Porc	Water Closet	WC
Flagstone	Flag	Porch	P	Weather-strip	Ws
Floor	Fl	Printed	Pr	White Pine	Wh P
Formica	Mica	Radiator	Rad	Wire & Paper	Wi&Pa
Frame	Fr	Redwood	Rdw	Wood	Wd
Gable	Gab	Reinforced Concrete	Re Conc		
Garage	Gar	Residence	Res		
Glass	Gl	Rock	Rk		
Gravel	Gr	Room	Rm		
Hard Plaster	H Pl	Round Edge Beveled	REB		
Hardwood	H Wd	Rubble	Rbl		
Heavy	Hvy	Rustic, Channel	Ch Rus		
Horsepower	HP	Rustic, Cove	Cv Rus		

### Porches

Concrete	C	Flagstone floor	F	Screened-in porch	SP
Wood floor	W	Uncovered porch	UP	Glassed-in porch	GP
Brick floor	B	Covered porch	CP	Enclosed porch	EP

### Example

W SP = wood floor, screened-in porch

## COST BREAKDOWN

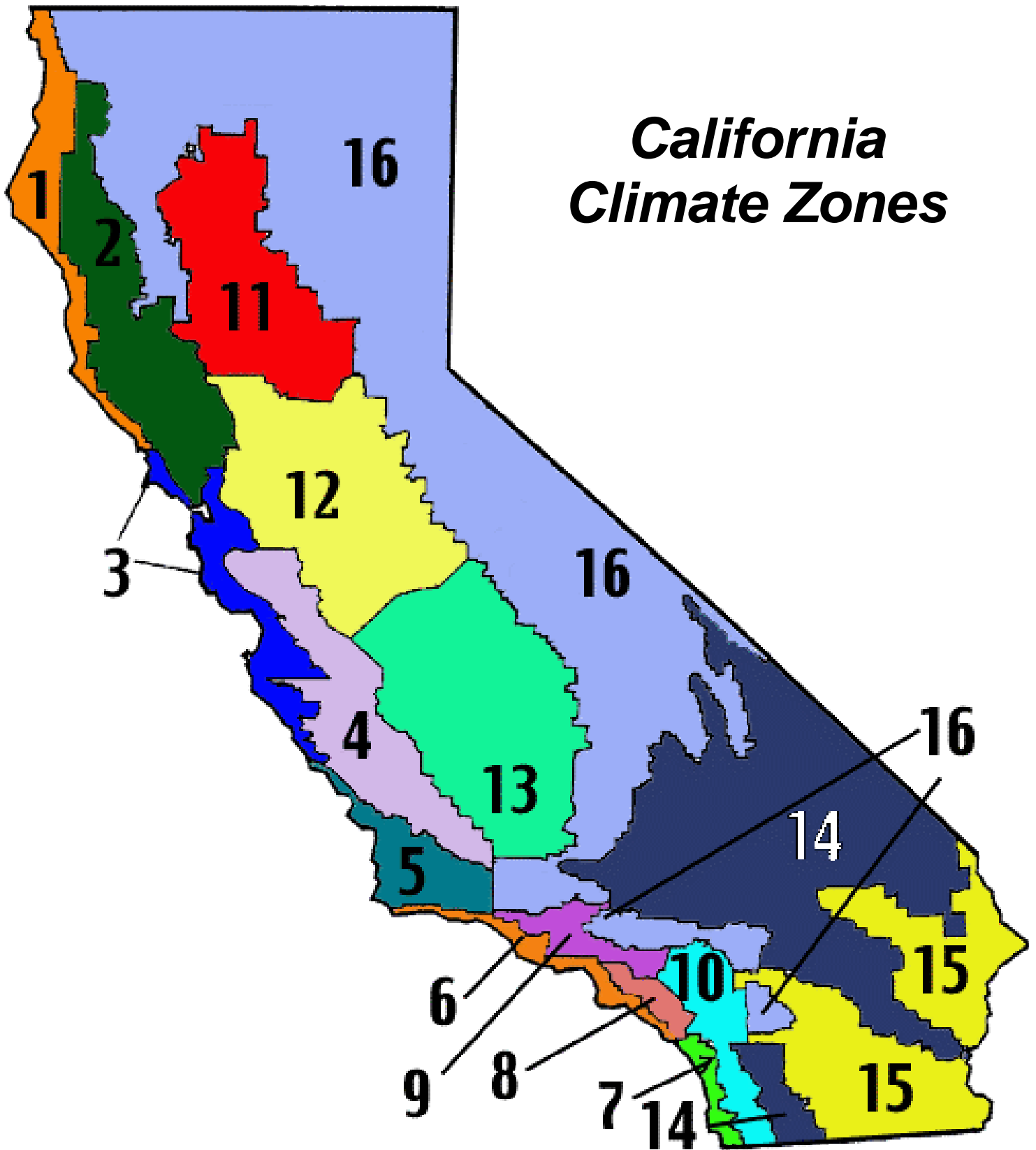
Cost breakdown of a *residence* of average quality, shape, and size—D6B, 1,200 sq. ft.—exclusive of basement, air conditioning, and fireplace (to be considered as additives), but inclusive of general overhead and contractor's and subcontractor's profits, expressed in percent per item and percent of total cost, and in the approximate order of installation or completion.

	Item	Percent of Total	Cumulative Percent of Total
1	Excavation, foundation and piers	7	7
2	Girders, floor joist, and subfloor	5	12
3	Wall framing and ceiling joist	10	22
4	Rafters, sheathing and flashing	5	27
5	Roof covering	4	31
6	Plumbing—sewer connections and rough-in	4	35
7	Wiring	3	38
8	Exterior stucco or siding	9	47
9	Interior lathing and plaster	10	57
10	Finish floors (including kitchen and bath)	8	65
11	Sash and doors	7	72
12	Built-ins and interior trim	6	78
13	Plumbing fixtures (including water heater)	9	87
14	Light fixtures	3	90
15	Finish hardware	2	92
16	Painting and decorating	8	100

This table may be used as a guide in determining the percentage of construction in progress involved in buildings under construction on the lien date.



## ***California Climate Zones***



# **AH 531.90: COMPACT COSTS**

## **GENERAL**

This is a method of cost estimating intended to speed up the residential cost estimating process without reducing accuracy. Square-foot costs include the cost of typical additive items such as porches, yard improvements, fireplaces, and heating systems. Time is saved by eliminating the need for measuring and computing the cost of a number of items that comprise only a small part of the total cost.

## **COMPOSITION OF COMPACT COSTS**

Compact costs include the following items as a part of the basic square-foot cost:

- Basic building costs
- Typical heating costs when applicable
- Typical fireplace costs when applicable
- Typical porch costs
- Typical yard improvement costs

Shape classification is not a consideration in this method. It is assumed that in a proper replacement cost the shape class will be relative to the quality class and size of the building. Small buildings of lower-quality class will tend to be "A" or "B" shape; larger, higher-quality class houses will tend to be of "C" or "D" shape. Basic square-foot costs will reflect what is a typical shape class for the quality and size of the building.

## **PROCEDURE**

Cost estimates are made by selecting a proper square-foot cost from a table and multiplying it by the living area of the building. If the building has air conditioning, a square-foot cost is added to the basic square-foot cost. If a garage is present, a lump sum amount for a single, double, triple, etc., garage is added.

Following is an example of a cost estimate made using the standard cost tables and a cost estimate using compact costs.

### STANDARD COST TABLES

Residence D7C (Modern Type)	2,298 sq. ft.	x	99.95	=	229,685
Concrete Covered Porch (1/2)	56 sq. ft.	x	49.97	=	2,798
HVAC	2,298 sq. ft.	x	4.00	=	9,192
Fireplace				=	2,550
Garage (Attached)	546 sq. ft.	x	38.19	=	20,852
Concrete Patio	300 sq. ft.	x	16.50	=	4,950
Fence (1" x 4" Redwood)	130 lin. ft.	x	16.75	=	2,178
Concrete Flatwork	1,000 sq. ft.	x	3.78	=	<u>3,780</u>
RCN					275,985

### COMPACT COST METHOD

Residence D7			109.79		
A-C (cool only)			<u>2.75</u>		
Residence	2,298 sq. ft.	x	112.54	=	258,617
Garage, Double					<u>17,500</u>
RCN					276,117

Extra items such as swimming pools, septic systems, or pressure systems should be added to the cost estimate.

### LOCATION ADJUSTMENTS

Compact costs are based upon the cost to build in Sacramento just as all other residential buildings costs. The map in Section AH 531.10, page 25, gives location adjustments for all locations in the State of California. These factors adjust for location only and reflect the typical adjustments necessary for the 2005 period. This map should not be confused with similar maps that contain factors for time as well as location.

### ADDITIONS

Additions can be cost estimated using a compact square foot cost based upon the quality class of the addition and the total area of the original house plus the addition. The square foot cost is applied to the addition area only.

If the addition has built-ins, plumbing fixtures, cabinets, or other additives that were not included in the original structure, the cost of the additives should be added by appropriately increasing the quality class of the addition.

The cost of the addition is then adjusted for location by using the locale map in Section 531.10, page 25.

**Example**

Assume an original 1,200 square foot, D6.5, air conditioned residence with a two-car garage in Santa Clara County was last sold in 1996.

On January 1, 2004 a 400 square foot addition with a quality class of D6.5 is built. The RCN of the addition is computed as follows:

Total Area for Modification			
Original Residence	=	1,200 sq. ft.	
Addition	=	<u>400</u> sq. ft.	
Total Square Feet	=	1,600 sq. ft.	

**COMPACT COSTS**

Addition	400 sq. ft.	x	103.97	=	41,589
Air Conditioning	400 sq. ft.	x	2.75	=	<u>1,100</u>
Total RCN January 1, 2004					42,689
Location Adjustment					<u>1.25</u>
RCN Addition					53,361

## COMPACT COSTS SINGLE-FAMILY RESIDENCES

All square-foot costs include typical porches, yard improvements, fireplaces, and heating systems. Air conditioning systems and garages are to be added. Built-ins and plumbing fixtures are included as per building quality class specifications.

	<u>Residence</u>	<u>Garage</u>
D1	38.25 S.F.	10.75 S.F.
D1.5	41.84 S.F.	14.85 S.F.
D2	49.66 S.F.	19.27 S.F.
D3	53.57 S.F.	22.29 S.F.
D3.5	57.63 S.F.	25.59 S.F.

	<u>Square-Foot Area</u>									
<u>Class</u>	<u>500</u>	<u>600</u>	<u>700</u>	<u>800</u>	<u>900</u>	<u>1,000</u>	<u>1,100</u>	<u>1,200</u>	<u>1,300</u>	<u>1,400</u>
D4	79.64	75.12	73.03	68.53	66.24	64.35	62.77	61.57	60.17	58.77
D4.5	87.81	82.60	78.95	75.47	72.86	71.30	68.53	67.83	65.75	64.50
Add:	\$2.40 per square foot for central air conditioning, \$23.75 per square foot for garage area, or \$5,300 single, \$10,300 double, or \$16,700 triple garage. Fireplace not included.									

	<u>Square-Foot Area</u>									
<u>Class</u>	<u>800</u>	<u>900</u>	<u>1,000</u>	<u>1,100</u>	<u>1,200</u>	<u>1,300</u>	<u>1,400</u>	<u>1,500</u>	<u>1,600</u>	<u>1,700</u>
D5	88.34	85.03	82.77	80.51	77.90	76.87	75.47	73.74	73.03	72.17
D5.5	96.86	93.73	90.79	88.16	86.08	84.35	82.94	81.57	80.01	78.95
Add:	\$2.40 per square foot for central air conditioning, \$25.75 per square foot for garage area, or \$6,000 single, \$11,800 double, or \$18,000 triple garage. Fireplace not included.									

	<u>Square-Foot Area</u>									
<u>Class</u>	<u>900</u>	<u>1,000</u>	<u>1,100</u>	<u>1,200</u>	<u>1,300</u>	<u>1,400</u>	<u>1,500</u>	<u>1,600</u>	<u>1,700</u>	<u>1,800</u>
D6	109.03	105.72	102.76	100.34	98.77	96.35	95.29	93.55	92.52	90.95
D6.5	120.35	102.07	114.25	111.30	108.86	106.95	105.55	103.97	102.60	100.17
<u>Class</u>	<u>2,000</u>	<u>2,200</u>	<u>2,400</u>	<u>2,600</u>	<u>2,800</u>	<u>3,000</u>	<u>3,200</u>	<u>3,400</u>	<u>3,800</u>	<u>4,200</u>
D6	87.02	85.15	83.71	82.27	80.86					
D6.5	95.63	93.84	92.18	90.41	88.85	87.11	85.19	83.73	81.31	78.02
Add:	\$2.75 per square foot for central air conditioning, \$29.75 per square foot for garage area, or \$6,800 single, \$13,650 double, or \$20,500 triple garage.									

## COMPACT COSTS

### SINGLE-FAMILY RESIDENCES (CONTD)

	Square-Foot Area									
<u>Class</u>	<u>1,500</u>	<u>1,600</u>	<u>1,700</u>	<u>1,800</u>	<u>2,000</u>	<u>2,200</u>	<u>2,400</u>	<u>2,600</u>	<u>2,800</u>	<u>3,000</u>
D7	118.70	116.97	115.41	114.03	112.14	110.76	108.79	107.23	105.69	104.65
D7.5	141.39	138.75	135.94	133.66	131.55	129.59	128.02	126.79	125.90	125.20
<u>Class</u>	<u>3,400</u>	<u>3,800</u>	<u>4,200</u>	<u>4,600</u>	<u>5,000</u>					
D7	102.43	99.15	95.14	91.15	87.10					
D7.5	121.95	118.04	113.26	108.51	103.70					
Add:	\$2.75 per square foot for central air conditioning, \$39.77 per square foot for garage area, or \$9,100 single, \$17,500 double, or \$26,425 triple garage.									

	Square-Foot Area									
<u>Class</u>	<u>1,800</u>	<u>2,000</u>	<u>2,200</u>	<u>2,400</u>	<u>2,600</u>	<u>2,800</u>	<u>3,000</u>	<u>3,200</u>	<u>3,600</u>	<u>4,000</u>
D8	160.01	157.21	154.59	152.85	150.41	148.83	147.10	145.69	144.30	142.92
D8.5	209.88	202.32	195.70	192.37	189.80	187.42	185.40	183.17	181.70	180.42
<u>Class</u>	<u>4,400</u>	<u>4,800</u>	<u>5,200</u>	<u>5,600</u>	<u>6,000</u>					
D8	142.40	139.51	135.65	130.82	125.18					
D8.5	178.01	174.39	169.56	163.53	156.47					
Add:	\$3.25 per square foot for central air conditioning, \$46.00 per square foot for garage area, or \$12,500 single, \$23,625 double, or \$37,233 triple garage.									